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Attachment 1

INTERIM RESPONSE ACTION
SUMMARY PACKAGES

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300 AREA PROCESS TRENCHES
INTERIM RESPONSE ACTION

Environmental Engineering Remedial Action Section
G. C. Henckel, Project Engineer

November 26, 1990

51120530015

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this document is to provide general information on the proposed Interim Response Action (IRA) for the 300 Area (316-5) Process Trenches. The information is presented to the United States Environmental Protection Agency (EPA) and Washington Department of Ecology (Ecology) to provide a general understanding of the proposed project which will lead to a decision regarding the continuance of the IRA process for the 316-5 trenches.

If the process is continued, an Interim Response Action Proposal will be prepared as described in the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). Implementation of the proposed response action will proceed after regulatory approval and public comment.

1.2 Background

On October 18, 1990 an Agreement in Principle between the United States Department of Energy (DOE), the EPA, and the State of Washington was signed (Attachment A). The agreement states that initially, three candidate sites will be considered for Interim Response Action (IRA). The agreement also states that the candidate sites under consideration would include, but not be limited to:

- o 618-9 Burial Ground Remediation
- o 300 Area Process Trenches sediment removal
- o 200 West Area Carbon Tetrachloride treatment.

In accordance with the October 18, 1990 agreement, the DOE is required to propose the selected projects to the EPA and Ecology for review of costs, technical basis, and project feasibility. The projects which meet regulatory approval will then be proposed to the public for comment prior to issuance of final approval for initiating a specific project.

The proposed projects were selected following a limited evaluation of seven sites by DOE and EPA. The DOE proposed the three above mentioned candidate sites for primary consideration, with the remaining sites deferred for future consideration. The selection process for the seven sites was not intended to be a comprehensive evaluation of all potential sites at Hanford. The selection process is an attempt to identify sites where an IRA would have merit.

2.0 SITE BACKGROUND

The 316-5 Process Trenches, an active TSD unit, are located in the 300-FF-1 (Figure 1) and 300-FF-5 CERCLA Operable Units. The north-south trenches are approximately 458 meters in length by 5 meters in depth with a bottom width of 3 meters. There is a small ponded area at the north end of the west trench.

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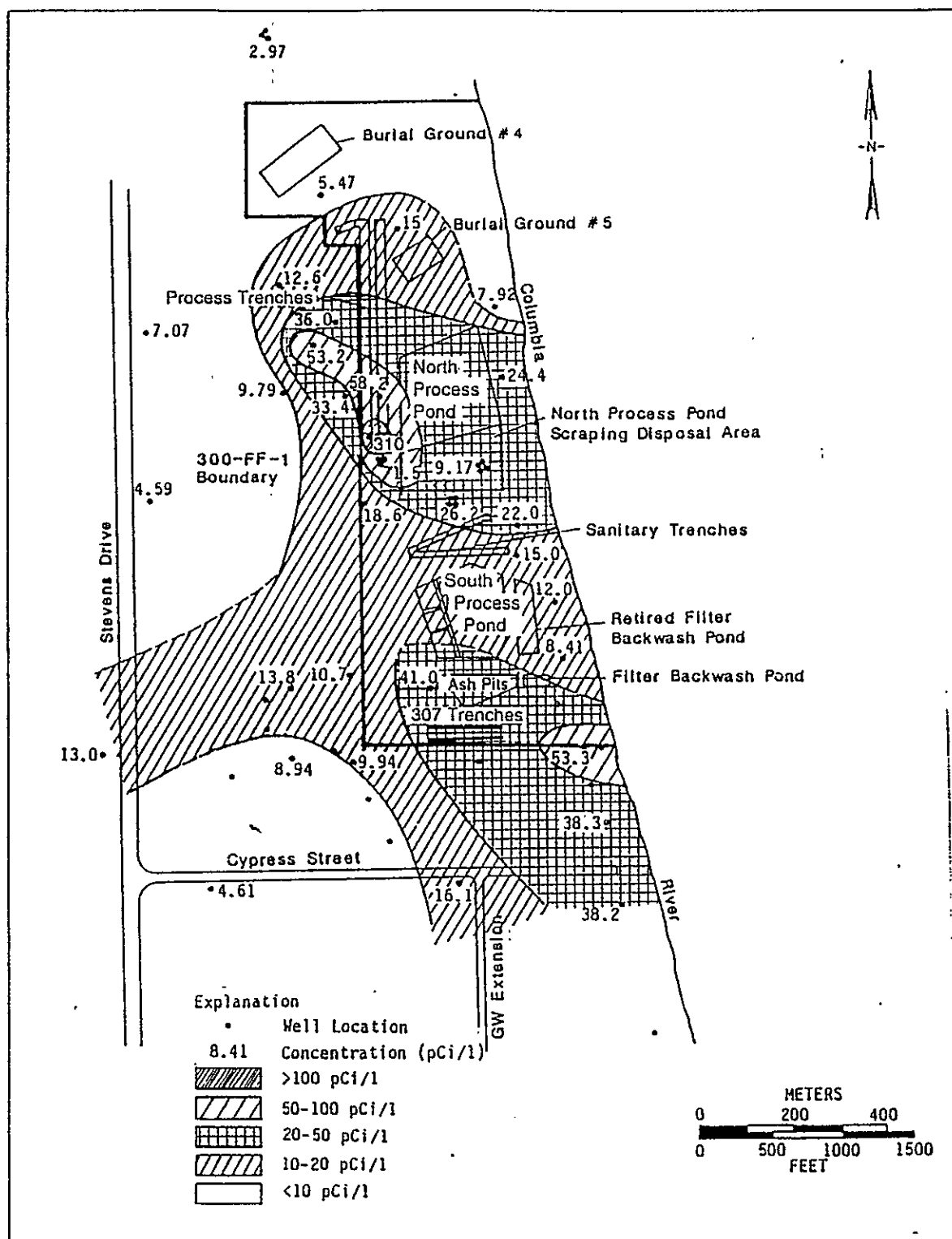


Figure 1. 300 Area Process Trenches and Groundwater Uranium Concentrations

6 1 0 0 6 5 0 2 1 1 6

The trenches are located near the western boundary of the 300-FF-1 Operable Unit, approximately 300 meters west of the Columbia River.

Environmental surveillance and monitoring activities for the 300 Area indicates that elevated levels of contaminants occur in the shallow groundwater and soil column beneath trenches. The soil and groundwater contaminants are a result of previous liquid waste disposal activities conducted in the soil column since 1975. The trenches, which are presently operated under a Resource Conservation and Recovery Act (RCRA) Interim Status Permit, were constructed and activated in 1975. Continuing discharge of liquid effluents to the soil column, even with the present waste stream being classified as nonhazardous and nonradioactive, has the potential to remobilize the radionuclides (uranium) and heavy metals which have been adsorbed in the soil (in close proximity to the trench bottoms). Once remobilized, the contaminants are able to migrate downward to the groundwater and then into the Columbia River. The City of Richland, located 5 miles downstream, obtains part of the public water supply from the river.

Discharges to the trench presently range from 3000 liters per minute (lpm) to 4500 lpm, averaging 3500 lpm. During peak activities in the 300 Area, discharge rates of 11,360,000 liters per day may have occurred. Since 1985, administrative controls have been in place to reduce and eliminate discharges of dangerous wastes to the process trenches. The present waste stream consists of potable water overflow, equipment cooling water, steam condensate, laboratory test liquids, research liquids and surface runoff. Substances discharged to the trenches, prior to 1985, were both slightly radioactive and hazardous. Previous fuel fabrication activities may have been the most significant source of uranium and heavy metals, as well as other contaminants. Since deactivation of the fuel fabrication facilities, a significant reduction in these contaminants has occurred. The identified contaminants, which may exceed "background" concentrations in the process trenches, include uranium, cadmium, nickel, lead, mercury, copper, chromium, and silver. Elevated gross alpha and beta measurements indicate the presence of radionuclides.

3.0 BENEFIT OF THE INTERIM RESPONSE ACTION

The 316-5 Process Trenches, located near the Columbia River, are presently thought to be a source of groundwater contamination (uranium) which is migrating towards the river. The present process effluent treatment strategy provides for construction and activation of a treatment facility north of the trenches by June, 1995 (Milestone M-17-09). The removal and treatment of the contaminated soils from the bottom of the trenches would provide a reduction in the amount of contaminants available for remobilization and migration to the groundwater and eventually the river, which is a source of drinking water for the City of Richland (5 miles downstream). The effect on the biological system in, and along the river, has not been characterized. A reduction in the potential source would provide a positive benefit to the environment and lessen any potential for contaminants to impact the public.

4.0 CONCEPT OF THE INTERIM RESPONSE ACTION

4.1 Goal of the IRA

The goal of conducting an interim response action is to minimize the potential for additional contaminants to migrate through the soil column to the groundwater (primarily uranium and heavy metals) and into the Columbia River. The proposed action is not expected to interfere with the remedial activities currently being performed in the 300-FF-1 and 300-FF-5 Operable Units and will provide a positive action which could be used for other liquid discharge area responses or final remediation.

4.2 Measure of Success

The success of the action will be judged on the reduction in waste mass through removal and concentration of contaminants.

4.3 Net Results of IRA

Implementation of the action at the process trenches would result in the immediate reduction in the quantity of available contaminants (radioactive and dangerous) which may cause continued contamination of the soil and groundwater. The IRA presents a potential to reduce the migration of the groundwater plume associated with the trench and will lead to a reduction in potential dose to the environment and the public.

4.4 IRA Implementation

The process for implementing the IRA at the Process Trenches will follow the format outlined in the Tri-Party Agreement. The IRA is considered to be non-time critical, meaning that a planning period of at least six months exists prior to initiation of the activity. Implementation of a non-time critical IRA requires an Engineering Evaluation/Cost Assessment to be conducted and submitted to the lead regulatory agency (EPA). In the case of the Hanford Site strategy for performing an IRA, the EE/CA will be contained in the IRA Proposal. The proposal will provide details necessary for implementing the alternative chosen in the EE/CA. The outline of the IRA implementation work flow is briefly described below.

4.4.1 IRA Project Plan

Initially, a brief IRA Project Plan will be prepared to outline how each phase of the IRA is implemented (Attachment B). The project plan identifies each of the alternatives (that will be considered by the EE/CA) and the site evaluation data objectives and tasks necessary to evaluate the alternatives. The plan is considered to be a secondary document as defined in the Tri-Party Agreement.

4.4.2 Site Evaluation

The principal purpose of site evaluation is to refine the conceptual model of the nature and extent of contaminants, and the physical characteristics of the vadose zone to complete the IRA evaluation. In addition, the data will be used to assess worker health and safety. Site evaluation will be completed by reviewing existing data.

4.4.3 IRA Proposal and IRA Action Memorandum

The IRA Proposal includes the EE/CA which provides a detailed analysis of the alternatives considered for the action. The proposal will be submitted to both DOE-RL and the regulatory agencies for concurrent review. The assumption is that the Process Trenches, an interim status permitted RCRA TSD Unit, IRA will be conducted under the 300-FF-1 CERCLA Operable Unit activities with the EPA being the lead regulatory agency responsible for approval of the IRA Proposal after public comment. Attachment C provides an outline for the IRA proposal.

4.4.4 Design and Implementation

Following approval of the IRA Proposal, the chosen alternative will be designed and implemented. It is anticipated that a commercially available transportable soil washing system, using the present process effluent for makeup water, will be used to perform the IRA.

4.4.5 Reporting

There will be a need to prepare and provide periodic status reports concerning the progress of the IRA for distribution to the concerned parties. Upon completion of the IRA, a final report assessing and evaluating the IRA will be prepared for distribution.

4.5 Cost and Schedule Summary

The preliminary cost estimate and schedule for the IRA are provided in Attachments D and E, respectively.

ATTACHMENT A
AGREEMENT IN PRINCIPLE

911295600116

AGREEMENT IN PRINCIPLE
Between the United States Department of Energy,
the United States Environmental Protection Agency,
and the State of Washington

THIS AGREEMENT is entered into between the United States Department of Energy (DOE), the United States Environmental Protection Agency (EPA), and the State of Washington.

WHEREAS, the parties to this AGREEMENT have previously entered into the Hanford Federal Facility Agreement and Consent Order on May 15, 1989, (Tri-Party Agreement) to provide for the coordinated efforts of all parties to assure compliance of DOE Hanford Site activities with requirements of the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), including corrective actions and remedial actions required by those Acts, and applicable state law; and

WHEREAS, the parties have pursuant to RCRA, CERCLA and the Tri-Party Agreement instituted the process of conducting CERCLA remedial investigations and feasibility studies (RI/FS) and RCRA facility assessments and corrective measures studies (RFI/CMS) of operable units on the Hanford Site; and

WHEREAS, the parties are desirous of taking immediate steps to accelerate the physical restoration of the Hanford Site prior to completion of RI/FS and RFI activities through performance of expedited response actions:

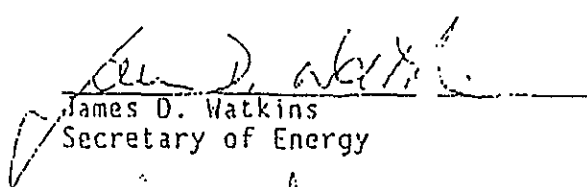
NOW, THEREFORE, DOE, EPA, and the State of Washington agree as follows:

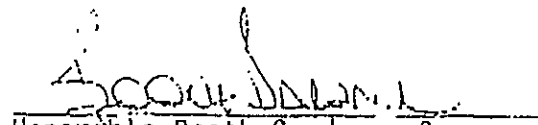
1. That each party reaffirms its commitment to the Tri-Party Agreement.
2. That DOE reaffirms its obligations and commitment to seek sufficient funding from Congress to meet all existing milestones in the Tri-Party Agreement and future new milestones or revised milestones established by agreement of the parties in accordance with Article XL of the Tri-Party Agreement.
3. DOE has identified a list of potential Hanford Site projects which may be considered for expedited response actions. Candidate projects under consideration for expedited response actions, include, but are not limited to:
 - a. 618-9 Burial Ground Remediation
 - b. 300 Area Process Trenches Sediment Removal
 - c. 200 West Area Carbon Tetrachloride Treatment.
4. DOE will propose the selected projects to Ecology and EPA for their review of the technical basis, costs and feasibility for these projects. The three parties will jointly propose to the public those projects if they meet regulatory approval. The three parties will follow the public involvement procedures of the Tri-Party Agreement and the CERCLA National Contingency Plan.

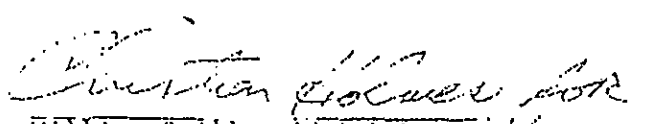
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5. Following regulatory and public review, DOE commits to implementing these three candidate projects, or other appropriate projects from the list, pursuant to a schedule agreed upon by the three parties. DOE commits to the implementation of these projects as additions to the Tri-Party Agreement and without an impact on the existing milestones of the Tri-Party Agreement.
6. In order to understand the total activities under consideration and to establish a baseline for the activity which can be used as a basis for decisions and against which progress can be measured, the initial step for each of the potential projects is the development of a detailed cost estimate based upon that plan.
7. These activities will be conducted in a manner consistent with prudent management and will serve as a model for future activities in the Environmental Restoration and Waste Management Program.
8. The parties will use their best efforts to complete the steps identified in the foregoing paragraphs as soon as practical.

NOW, THEREFORE, the parties hereto have signed this AGREEMENT in recognition of their pledge of mutual best efforts to achieve through cooperation and negotiation, in good faith, the understandings as set forth above on this 18th day of October, 1990.


James D. Watkins
Secretary of Energy


Honorable Booth Gardner, Governor
State of Washington


William Reilly, Administrator
U. S. Environmental Protection
Agency

ATTACHMENT B
PROJECT PLAN OUTLINE

9112056005

IRA Project Plan

1.0 Introduction

- 1.1 Purpose
- 1.2 Background
- 1.3 Organization

2.0 Site Characteristics

2.1 Physical Characteristics

- 2.1.1 Waste Facilities
- 2.1.2 Geology/Soils
- 2.1.3 Hydrogeology

2.2 Nature and Extent of Contamination

- 2.2.1 Contamination Sources
- 2.2.2 Air Contamination
- 2.2.3 Soil Contamination
- 2.2.4 Groundwater Contamination
- 2.2.5 Other

3.0 Preliminary Screening of Alternatives

4.0 Site Evaluation Tasks

5.0 IRA Proposal Tasks

6.0 IRA Design and Implementation Tasks

7.0 Project Schedule

8.0 References

ATTACHMENTS

- Attachment 1 Sampling and Analysis Plan/QAPP
- Attachment 2 Health and Safety Plan
- Attachment 3 Project Management Plan
- Attachment 4 Data Management Plan
- Attachment 5 Community Relations Plan
- Attachment 6 Memos, Letters

ATTACHMENT C
ANNOTATED IRA PROPOSAL OUTLINE

911205600-7

Interim Response Action Proposal

1.0 Introduction

The introduction will define the purpose and scope of the IRA proposal. The discussion will include the various reasons and requirements for performing the IRA. The relationship between the IRA and the ongoing Remedial Investigation/Feasibility Study activities will also be described.

2.0 Site Description

This section will provide a brief description of the site being considered for an IRA. A summary of the information that is pertinent to the selection of the preferred alternative will be included. This information will be provided in a site characterization summary report.

3.0 Description of the IRA Alternatives

This section will develop the various IRA Alternatives being considered. This section does not attempt to evaluate the IRA alternatives. Below find an outline of the contents of this section.

3.1 IRA Alternative Name

- 3.1.1 Description of Alternative
- 3.1.2 Requirements for Implementing Alternative
- 3.1.3 Impact on Future Restoration Activities
- 3.1.4 Maintenance Requirements
- 3.1.5 Cost Estimates

4.0 Evaluation Criteria

Each of the criteria that is to be used to evaluate the IRA alternatives described in Section 3.0 are identified in this section. The method of scoring the alternatives against these criteria will also be explained. The types of evaluation criteria utilized will be based on the EPA's "Nine criteria for evaluation" as listed in 40 CFR Part 300.430, which are as follows:

- 1) Overall protection of human health and the environment;
- 2) Compliance with applicable or relevant and appropriate requirements;
- 3) Long-term effectiveness and permanence;
- 4) Reduction of toxicity, mobility or volume through treatment;
- 5) Short-term effectiveness;
- 6) Implementability;
- 7) Cost;
- 8) Regulatory Acceptance;
- 9) Community Acceptance.

5.0 Selection of Alternatives

The purpose of this section is to select the preferred IRA alternative. Each alternative developed in section 3.0 will be evaluated for implementation using the criteria listed in section 4.0.

6.0 Preferred IRA Alternatives Implementation

This section will provide a discussion detailing the implementation of the preferred IRA alternatives chosen in Section 5.0. All procedures that will be used, or that need development will be identified. All permits, such as excavation permits and Hazardous Waste Operations Permits will also be mentioned. Health and Safety, waste management, waste minimization and environmental monitoring will be discussed herein.

7.0 Project Management Plan

Each of the organization that will participate in the implementation of the IRA and their roles will be identified in this section. A flow chart showing the management structure, a detailed schedule for implementation, and cost estimates for implementing the IRA activity will also be provided.

ATTACHMENT D
IRA COST ESTIMATE

The attached cost estimate for the proposed IRA is preliminary and should be considered rough order-of-magnitude. A definitive cost estimate will be provided in the IRA proposal for the selected remediation alternative.

911205000

1.0 Project Management

Program Manager	0.25 FTE/Yr x	2.16 Yr	
Projects Manager	0.34		
Project Engineer	1.25		
Clerk/Typist	0.5		

2.34 x 2.16 = 5.054 FTE

FY-91	234,000	FY-92	234,000	FY-93	37,440
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Quality Assurance	0.125
Health/Safety	0.125
Community Relation	0.125
Facility Safety	0.125
NEPA	0.25
Other Permits	0.25

1.0 x 2.16 = 2.16 FTE

Travel/Training	0.5 FTE equivalent	0.5 FTE
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7.71 FTE

FY-91	130,000	FY-92	120,000	FY-93	16,000
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Task 1 Totals	FY-91 364,000	FY-92 354,000	FY-93 53,440
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2.0 IRA Scoping

Alternative Identification	0.15 FTE
Identify Data Needs	0.10
IRA Project Plan	0.10

0.35 FTE @ 100,000/FTE = 35,000

TASK 2 Totals	FY-91 35,000	FY-92 0	FY-93 0
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3.0 Site Evaluation

Source Evaluation	0.4 FTE
Report	0.1

0.5 FTE @ 100,000/FTE = 50,000

Task 3 Totals	FY-91 50,000	FY-92 0	FY-93 0
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4.0 IRA Proposal

EE/CA	1.0 FTE
Treatability Study	0.5
Write Proposal	0.3
Review/Approval	0.2

2.0 FTE @ 100,000/FTE = 200,000

Task 4 Totals	FY-91 200,000	FY-92 0	FY-93 0
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Subtotals Tasks 1,2,3,4

FY-91	649,000	FY-92	354,000	FY-93	53,440
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Totals Tasks 1,2,3,4 Assuming 20% contingency

FY-91	778,800	FY-92	424,800	FY-93	64,128
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5.0 Alternative Design

Assume 10% of cost for design specifications and developing operation and maintenance plan

Task 5 Totals	FY-91 200,000	FY-92 200,000	FY-93 0
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6.0 IRA Implementation

Procurement	0.15 FTE	15,000
Capital Cost		4,000,000
soil wash system		
excavator		
conveyor		
portable storage tanks		

Site Preparation/Construction		
Assume 10% of System Cost		400,000

System Installation/Test		
Assume 10% of Cost		400,000

Removal		
Operation 7000 tons @ 120/ton		840,000
HP	1.25 FTE x 1.35 yr	168,750
Archeologist	1.25 x 1.0	125,000
NPO	3.25 x 1.0	325,000

Waste Disposal/Storage		
Assume 80% volume reduction		
1000 cu. yd. of dry waste		
4000 drums @ 50 ea		200,000
4000 mixed waste drums @ 1800 ea		7,212,400
Subtotal		7,412,000

Task 6 Totals	FY-91 5,000	FY-92 14,280,750	FY-93 0
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7.0 Project Assessment/ Evaluation

Periodic Status Reports	0.1 FTE	10,000
Final Report	0.15	15,000

Task 7 Totals	FY-91 1000	FY-92 3000	FY-93 21,000
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Subtotals Tasks 5,6 & 7

FY-91 206,000	FY-92 14,283,750	FY-93 21,000
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Totals Tasks 5,6 & 7 Assuming 30% contingency

FY-91 267,800	FY-92 18,568,875	FY-93 27,300
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Totals for all Tasks

FY-91 1,045,800	FY-92 18,993,675	FY-93 91,428
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IRA PROJECT TOTAL	20,130,903
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ATTACHMENT E

IRA SCHEDULE

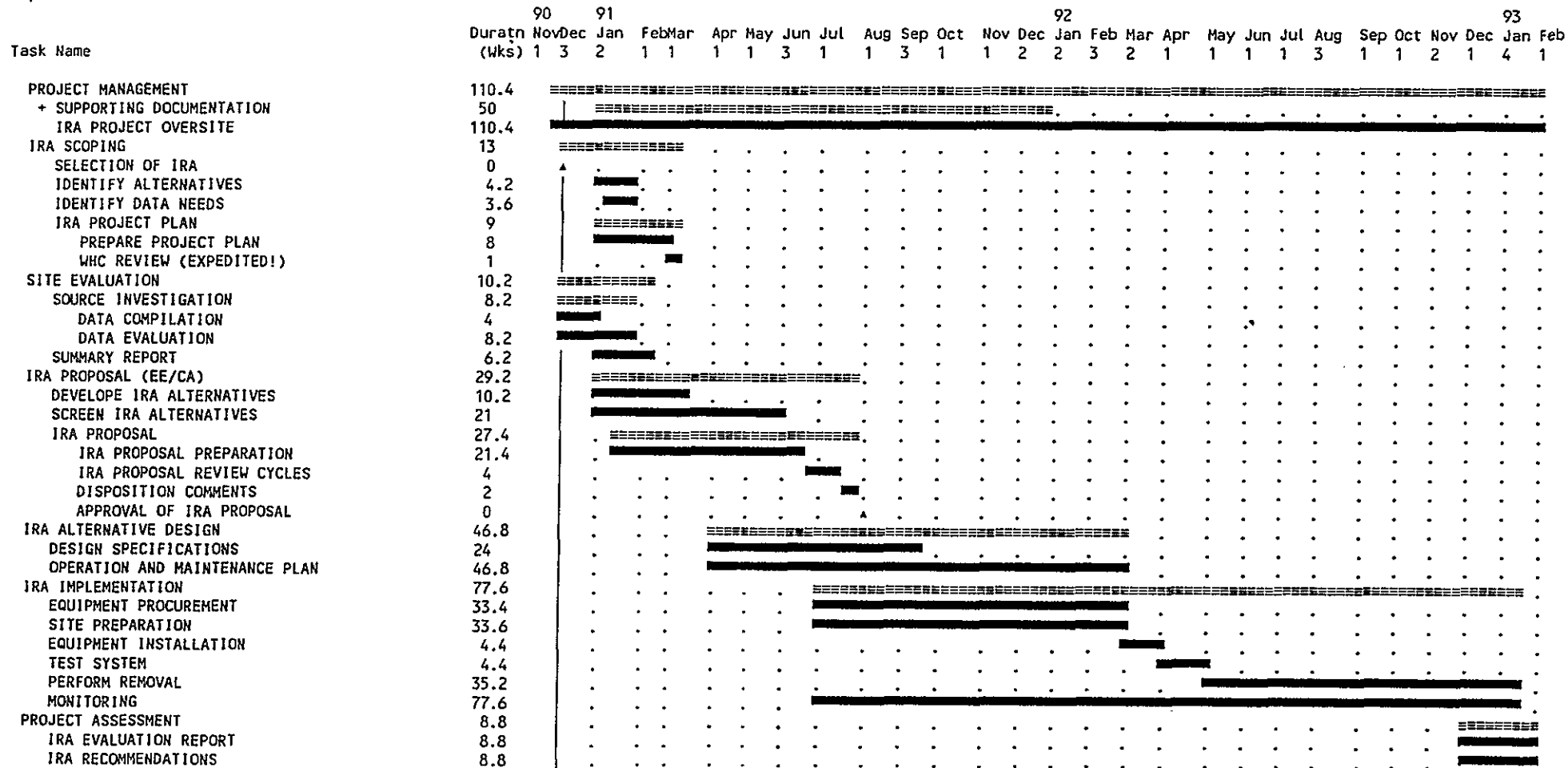
The attached schedule for the proposed IRA is preliminary. Additional data about site conditions and health and safety requirements are required to produce an accurate schedule. A final schedule will be provided in the IRA Proposal.

9112056004

9 1 1 2 5 6 0 0 1 5

Schedule Name : INTERIM RESPONSE ACTION - 316-5 TRENCHES
Responsible :
As-of Date : 28-Nov-90 Schedule File : A:\PROCESS

Dependencies : MONITORING



 ■ Detail Task ■ Summary Task ▲ Milestone
 .. (Started) == (Started) >>> Conflict
 — (Slack) — (Slack) .. Resource delay
 ----- Scale: 1 week per character -----

618-9 BURIAL GROUND
INTERIM RESPONSE ACTION

Environmental Engineering Remedial Action Section
J. M. Frain, Project Engineer

November 26, 1990

911225006

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D	IRA SCHEDULE	D-1
E	COST ESTIMATES	E-1

9112353007

1.0 INTRODUCTION

1.1 Purpose

The purpose of this document is to provide information on the proposed Interim Response Action (IRA) for the 618-9 Burial Ground. This information is presented to the U.S. Environmental Protection Agency (EPA) and the State of Washington Department of Ecology (Ecology) to provide a general understanding of the proposed project, which will lead to a decision regarding the continuance of this IRA process.

If the IRA process is continued, a comprehensive IRA Proposal will be prepared as a "primary document" per the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). This will allow for public involvement and regulatory approval of the IRA prior to actual implementation of the proposed response action.

1.2 Background

On October 18, 1990, an agreement in principle between the U.S. Department of Energy (DOE), the EPA and Ecology was signed (Attachment A). This Agreement states that three candidate projects will be considered for expedited response actions. The agreement states that the projects under consideration include, but are not limited to:

- o 618-9 Burial Ground Remediation
- o 300 Area Process Trenches Sediment Removal
- o 200-West Area Carbon Tetrachloride Treatment

Per the agreement, DOE is required to propose the selected project to the Ecology and the EPA for their review of the technical basis, costs, and feasibility of implementing these projects. The three parties will jointly propose to the public those projects which meet regulatory approval.

The three proposed projects were selected following a limited evaluation of seven candidate sites. The list of seven sites was originally developed by DOE and EPA. The U.S. Department of Energy Headquarters made the decision to proceed at this time on the three proposed sites with the other sites being deferred for future consideration. The selection process of the seven sites under consideration was not intended to be a comprehensive evaluation of all possible candidate sites at Hanford. However, it was an attempt to select known sites where such response actions would have merit.

2.0 SITE DESCRIPTION AND BACKGROUND

Throughout Hanford Site history, prior to legislation regarding disposal of chemical waste products, some drummed chemical wastes were disposed by burial in trenches. One of these trenches is the 618-9 Burial Ground. The 618-9 Burial Ground is located west of the 300 Area, a few miles north of the City of Richland, Washington (see map, Figure 1). This burial ground is known to contain approximately 5000 gallons of uranium contaminated organic solvent (primarily hexone). The solvent was contained in 55 gallon drums prior to burial, however, an exact inventory of the number of drums in that location is not available. Current estimates place the number around 100.

The burial ground began operations in 1950, and may have continued through 1956. All wastes in the burial ground were produced from research and development activities in the 300 Area (321 Building). It is expected that the drums are not entirely intact, and that some or all of the liquid contained within them has escaped, due to the fact that the drums have been in the ground over 30 years.

No hexone has been detected in the groundwater around the 618-9 burial ground, and subsidence at the burial ground is limited. This could be an indication that the drums have not yet leaked, or if leakage has occurred, the organic solvent is held in the vadose zone, and has not yet reached groundwater.

3.0 BENEFIT OF ACTION

The recent increase in public awareness of activities that influence the environment has drawn considerable attention to the Hanford Site. Many of the concerns expressed by the public concerning the Hanford Site address the issue of off-site exposure of contaminants. Since the drums in the 618-9 represent a potential exposure situation, completion of the interim remedial effort would eliminate some concerns.

Removal of the drums from the area in question will prevent possible migration of uranium contaminated solvents from the burial ground into the groundwater and from there, into the Columbia River. Implementing this action now, prior to the work on the 300-FF-2 Operable Unit, provides benefits to all parties concerned (regulatory agencies, the public, DOE). Foremost, this interim action mitigates potential contamination of surface and groundwater. Further, remediation at this time will save substantial costs over groundwater remediation in the future, should the solvent migrate before the drums can be removed.

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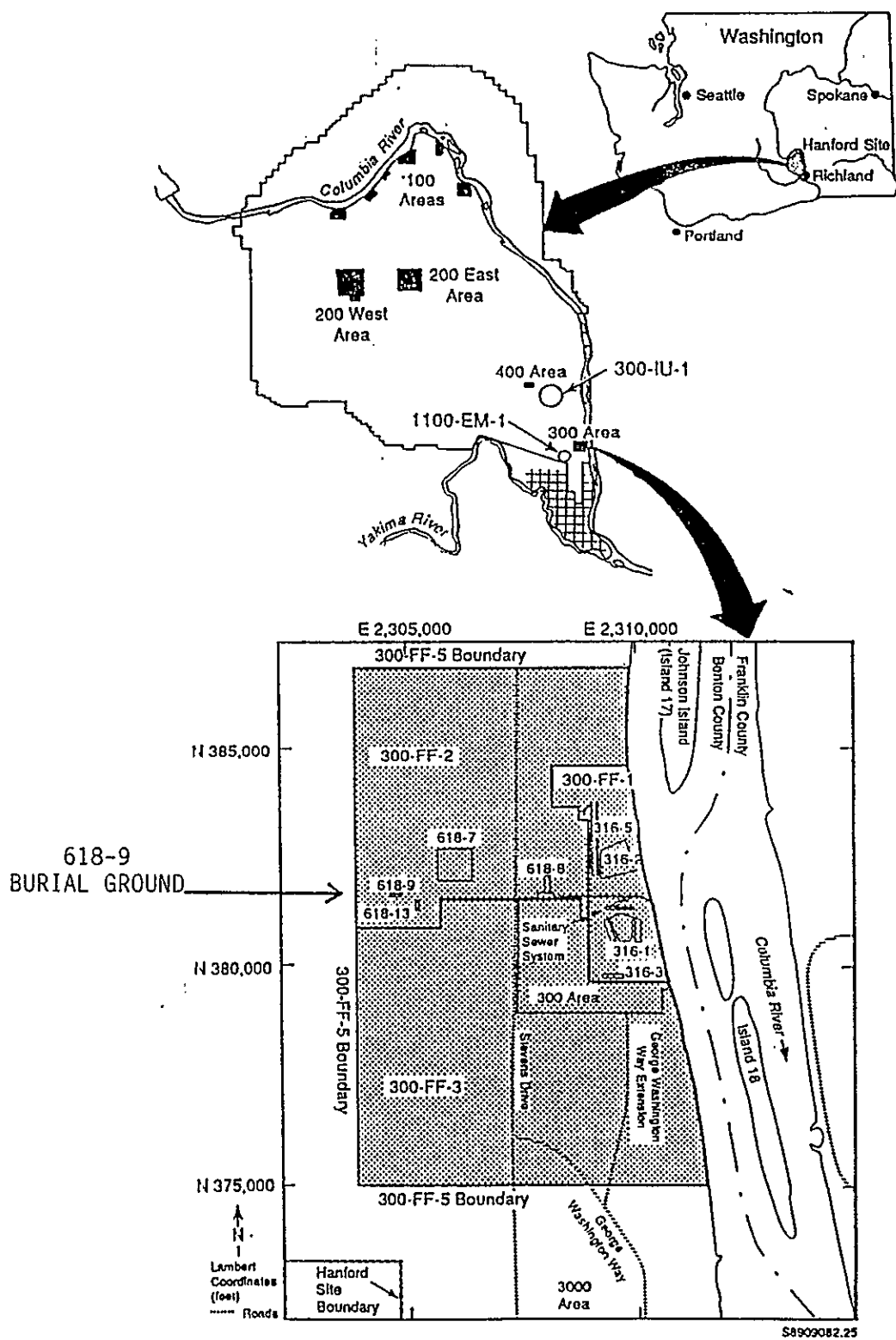


FIGURE 1 Location of the 618-9 Burial Ground

4.0 CONCEPT OF THE INTERIM RESPONSE ACTION

4.1 Goal

The goal of the interim response action (IRA) at the 618-9 burial ground is to remove the buried drums and the liquid within, and thus remove a potential threat to the groundwater and/or river. If the drums have leaked during the thirty (+) years since initial burial, a remediation of the soil will be undertaken.

4.2 Measure of Success

Success for this action will be determined by removal and treatment of the contaminated solvents from the drums, and by the remediation of the underlying soils, if contamination is present.

4.3 Implementation

The process for implementing the IRA at the 618-9 Burial Ground would follow the format outlined in the Tri-Party Agreement. Further detail was obtained from "The U.S. EPA's Expedited Response Action Program" (HMCRI, 1987).

4.3.1 IRA Project Plan

The first stage of the project entails the preparation of a project plan outlining each phase of the IRA (Attachment B). This plan identifies site scoping activities, and provides a preliminary list of site remediation alternatives to be evaluated in the Engineering Evaluation/Cost Analysis (EE/CA), described in Section 4.3.3. The IRA project plan also serves as guidance for all site evaluation activities. This document is a secondary document as defined in the Tri-Party agreement.

4.3.2 Site Evaluation

The site evaluation refers to all activities which will be performed to adequately assess the nature and extent of contamination at the site, as well as to determine other physical characteristics. This information will be reported as a secondary document, and will be used to complete the IRA proposal (section 4.3.4), health and safety documentation, National Environmental Policy Act (NEPA) documentation, and other activities crucial to the implementation of the IRA.

Specific to the 618-9 IRA, site evaluation activities will include, but are not limited to: ground penetrating radar, soil gas sampling, overburden excavation and drum sampling, surrounding soil sampling (after excavation).

If possible, during the site evaluation activities, all liquid from the drums will be removed.

Initial scoping of the site will determine the exact location of the trench and the drums within, and soil gas surveys will indicate if organic vapors (from leaking drums) are present. Following the scoping, the soil overburden will be removed and the drums containing liquids will be pumped. Removed liquid will be stored in a tank for subsequent analysis and treatment.

Further discussion of the site evaluation activities can be found in Section 4.5 "Cost and Schedule".

4.3.3 IRA Proposal and IRA Action Memorandum

The IRA proposal (outline, Attachment C) documents the Engineering Evaluation/Cost Analysis (EE/CA) of remedial alternatives, along with providing information regarding public health and welfare, environmental impacts, technical feasibility, institutional considerations and cost.

The IRA proposal is considered a primary document under the Tri-Party Agreement, and as such requires regulatory review and approval. In order to expedite the process, and provide a timely implementation, DOE, EPA and Ecology will concurrently review the document. Public review will follow incorporation of comments from the above mentioned reviews. As specified in the Tri-Party Agreement, the EPA will ultimately be responsible for selecting a remediation alternative for implementation by issuing an IRA action Memorandum.

4.3.4 Design and Implementation

The chosen alternative will be implemented following the action of Section 4.3.3. In this case, the IRA will be phased, the schedule of which will be determined by the nature and extent of the site contamination, and of health and safety concerns, to be determined with completion of the IRA proposal. A preliminary schedule is discussed in Section 4.5.

The implementation of the IRA will require that, 1) liquids be removed from the drums, 2) extent of soil contamination, if any, be determined, and 3) that the soils and contaminated solvents be treated. Methods for IRA implementation will be evaluated in the IRA proposal.

4.3.5 Reporting

The IRA is expected to be completed in approximately a year and a half. Reports will be issued at critical moments of IRA activities. These reports may include, but are not limited to; documentation of drum contents, sampling results, activity initiation, etc.

4.4 Impacts

The burial ground is located within the 300-FF-2 Operable Unit, for which the Work Plan has not yet been initiated, and it is listed as a source term for the 300-FF-5 Operable Unit, which has an approved Work Plan. All work at this site will be coordinated with the Operable Unit Coordinators to prevent redundant activities. Soil gas surveys and groundwater sampling will be carried out in accordance with the 300-FF-5 Work Plan. Sampling and Analysis Plans, Quality Assurance Plans, Community Relations Plans, and portions of the Health and Safety Plan will be used for the implementation of the IRA, with project specific additions.

4.5 Cost and Schedule Summary

All current cost and schedule estimates (Attachments D and E) are preliminary. The current schedule proposes that the initial scoping studies for the determination of trench and drum location begin in January 1991. Removal of the soil overburden will begin in the spring. The current plan proposes that all liquid be pumped from the drums as a part of the site evaluation. The liquid would then be analyzed and stored for treatment until completion and approval of the IRA proposal. This timing allows for analysis of liquids and soils prior to the IRA proposal preparation, and also provides the solvent analysis for the completion of treatability studies. By phasing the project in this manner, project success can be ensured.

If, due to health and safety concerns, liquid removal cannot occur until a thorough analysis of the drum contents is conducted, the liquid removal will occur prior to treatment, in the fall of 1991. If this is the case, sampling of a few drums will be undertaken to determine the drum contents.

The entire project, including soil remediation is expected to last through fiscal year 1992. Further details on the schedule can be found in Attachment D. This schedule is based on two key assumptions. All reviews (WHC, DOE, EPA, Ecology, and the public) will occur simultaneously within a 30 day time period, and laboratory analyses will be level 2, or screening level. If these assumptions prove invalid, a minimum of four weeks will be added to the laboratory analysis schedule, and an additional six weeks will be added to the review cycle schedule.

The schedule hinges on timely receipt of a NEPA categorical exclusion to begin the scoping activities, and on the expedited preparation of facility safety documents to begin excavation.

5.0 REFERENCES

WHC, 1990, "Proposed Remediation Project and Technology Demonstration for a Shallow-Land Burial Trench on the Hanford Site", W.F. Heine, O.R Rasmussen, Westinghouse Hanford Company, Richland, WA, 1990.

HMCRI, 1987, "The U.S. EPA's Expedited Response Action Program", Robert D. Quinn, published in Hazardous Materials Control Monograph Series, Site Remediation, Volume 3, Silver Spring, MD., 1987.

91120530374

ATTACHMENT A
AGREEMENT IN PRINCIPLE

9 1 1 2 0 5 6 0 0 7 5

AGREEMENT IN PRINCIPLE
Between the United States Department of Energy,
the United States Environmental Protection Agency,
and the State of Washington

THIS AGREEMENT is entered into between the United States Department of Energy (DOE), the United States Environmental Protection Agency (EPA), and the State of Washington.

WHEREAS, the parties to this AGREEMENT have previously entered into the Hanford Federal Facility Agreement and Consent Order on May 15, 1989, (Tri-Party Agreement) to provide for the coordinated efforts of all parties to assure compliance of DOE Hanford Site activities with requirements of the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), including corrective actions and remedial actions required by those Acts, and applicable state law; and

WHEREAS, the parties have pursuant to RCRA, CERCLA and the Tri-Party Agreement instituted the process of conducting CERCLA remedial investigations and feasibility studies (RI/FS) and RCRA facility assessments and corrective measures studies (RFI/CMS) of operable units on the Hanford Site; and

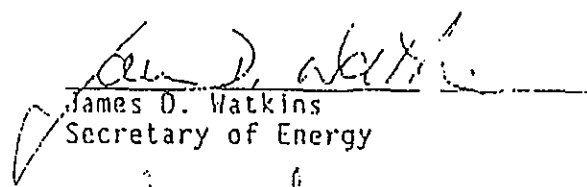
WHEREAS, the parties are desirous of taking immediate steps to accelerate the physical restoration of the Hanford Site prior to completion of RI/FS and RFI activities through performance of expedited response actions:

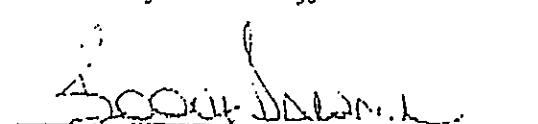
NOW, THEREFORE, DOE, EPA, and the State of Washington agree as follows:

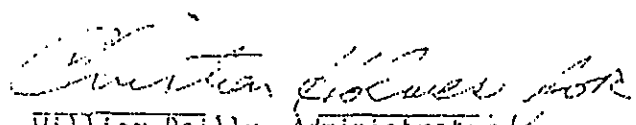
1. That each party reaffirms its commitment to the Tri-Party Agreement.
2. That USDOE reaffirms its obligations and commitment to seek sufficient funding from Congress to meet all existing milestones in the Tri-Party Agreement and future new milestones or revised milestones established by agreement of the parties in accordance with Article XL of the Tri-Party Agreement.
3. DOE has identified a list of potential Hanford Site projects which may be considered for expedited response actions. Candidate projects under consideration for expedited response actions, include, but are not limited to:
 - a. 618-9 Burial Ground Remediation
 - b. 300 Area Process Trenches Sediment Removal
 - c. 200 West Area Carbon Tetrachloride Treatment.
4. DOE will propose the selected projects to Ecology and EPA for their review of the technical basis, costs and feasibility for these projects. The three parties will jointly propose to the public those projects if they meet regulatory approval. The three parties will follow the public involvement procedures of the Tri-Party Agreement and the CERCLA National Contingency Plan.

5. Following regulatory and public review, DOE commits to implementing these three candidate projects, or other appropriate projects from the list, pursuant to a schedule agreed upon by the three parties. DOE commits to the implementation of these projects as additions to the Tri-Party Agreement and without an impact on the existing milestones of the Tri-Party Agreement.
6. In order to understand the total activities under consideration and to establish a baseline for the activity which can be used as a basis for decisions and against which progress can be measured, the initial step for each of the potential projects is the development of a detailed cost estimate based upon that plan.
7. These activities will be conducted in a manner consistent with prudent management and will serve as a model for future activities in the Environmental Restoration and Waste Management Program.
8. The parties will use their best efforts to complete the steps identified in the foregoing paragraphs as soon as practical.

NOW, THEREFORE, the parties hereto have signed this AGREEMENT in recognition of their pledge of mutual best efforts to achieve through cooperation and negotiation, in good faith, the understandings as set forth above on this 18th day of October, 1990.


James D. Watkins
Secretary of Energy


Honorable Booth Gardner, Governor
State of Washington


William Reilly, Administrator
U. S. Environmental Protection
Agency

ATTACHMENT B
PROJECT PLAN OUTLINE

91127560078

IRA Project Plan

1.0 Introduction

- 1.1 Purpose
- 1.2 Background
- 1.3 Organization

2.0 Site Characteristics

2.1 Physical Characteristics

- 2.1.1 Waste Facilities
- 2.1.2 Geology/Soils
- 2.1.3 Hydrogeology

2.2 Nature and Extent of Contamination

- 2.2.1 Contamination Sources
- 2.2.2 Air Contamination
- 2.2.3 Soil Contamination
- 2.2.4 Groundwater Contamination
- 2.2.5 Other

3.0 Preliminary Screening of Alternatives

4.0 Site Evaluation Tasks

5.0 IRA Proposal Tasks

6.0 IRA Design and Implementation Tasks

7.0 Project Schedule

8.0 References

ATTACHMENTS

- Attachment 1 Sampling and Analysis Plan/QAPP
- Attachment 2 Health and Safety Plan
- Attachment 3 Project Management Plan
- Attachment 4 Data Management Plan
- Attachment 5 Community Relations Plan
- Attachment 6 Memos, Letters

91120560079

ATTACHMENT C
ANNOTATED IRA PROPOSAL OUTLINE

9112253090

Interim Response Action Proposal

1.0 Introduction

The introduction will define the purpose and scope of the IRA proposal. The discussion will include the various reasons and requirements for performing the IRA. The relationship between the IRA and the ongoing Remedial Investigation/Feasibility Study activities will also be described.

2.0 Site Description

This section will provide a brief description of the site being considered for an IRA. A summary of the information that is pertinent to the selection of the preferred alternative will be included. This information will be provided in a site characterization summary report.

3.0 Description of the IRA Alternatives

This section will develop the various IRA Alternatives being considered. This section does not attempt to evaluate the IRA alternatives. Below find an outline of the contents of this section.

3.1 IRA Alternative Name

- 3.1.1 Description of Alternative
- 3.1.2 Requirements for Implementing Alternative
- 3.1.3 Impact on Future Restoration Activities
- 3.1.4 Maintenance Requirements
- 3.1.5 Cost Estimates

4.0 Evaluation Criteria

Each of the criteria that is to be used to evaluate the IRA alternatives described in Section 3.0 are identified in this section. The method of scoring the alternatives against these criteria will also be explained. The types of evaluation criteria utilized will be based on the EPA's "Nine criteria for evaluation" as listed in 40 CFR Part 300.430, which are as follows:

- 1) Overall protection of human health and the environment;
- 2) Compliance with applicable or relevant and appropriate requirements;
- 3) Long-term effectiveness and permanence;
- 4) Reduction of toxicity, mobility or volume through treatment;
- 5) Short-term effectiveness;
- 6) Implementability;
- 7) Cost;
- 8) Regulatory Acceptance;
- 9) Community Acceptance.

5.0 Selection of Alternatives

The purpose of this section is to select the preferred IRA alternative. Each alternative developed in section 3.0 will be evaluated for implementation using the criteria listed in section 4.0.

6.0 Preferred IRA Alternatives Implementation

This section will provide a discussion detailing the implementation of the preferred IRA alternatives chosen in Section 5.0. All procedures that will be used, or that need development will be identified. All permits, such as excavation permits and Hazardous Waste Operations Permits will also be mentioned. Health and Safety, waste management, waste minimization and environmental monitoring will be discussed herein.

7.0 Project Management Plan

Each of the organization that will participate in the implementation of the IRA and their roles will be identified in this section. A flow chart showing the management structure, a detailed schedule for implementation, and cost estimates for implementing the IRA activity will also be provided.

ATTACHMENT D
IRA COST ESTIMATE

The attached cost estimate for the proposed IRA is preliminary and should be considered rough order-of-magnitude. A definitive cost estimate will be provided in the IRA proposal for the selected remediation alternative.

9112053003

Listed below are the preliminary cost estimates by work breakdown structure outline.

Project Management	390,000
Project Support	150,000
IRA Scoping	25,000
Site Evaluation	
Exploratory Investigations	250,000
Liquid Removal	310,000
Laboratory Analysis	275,000
IRA Proposal	88,000
Alternative Design	35,000
IRA Implementation	
Procurement/Capital Cost	1,750,000
Site Preparation	70,000
Removal Action	900,000
Monitoring	275,000
TOTAL	4,518,000
+ 30% Contingency	5,873,400

9112753094

ATTACHMENT E

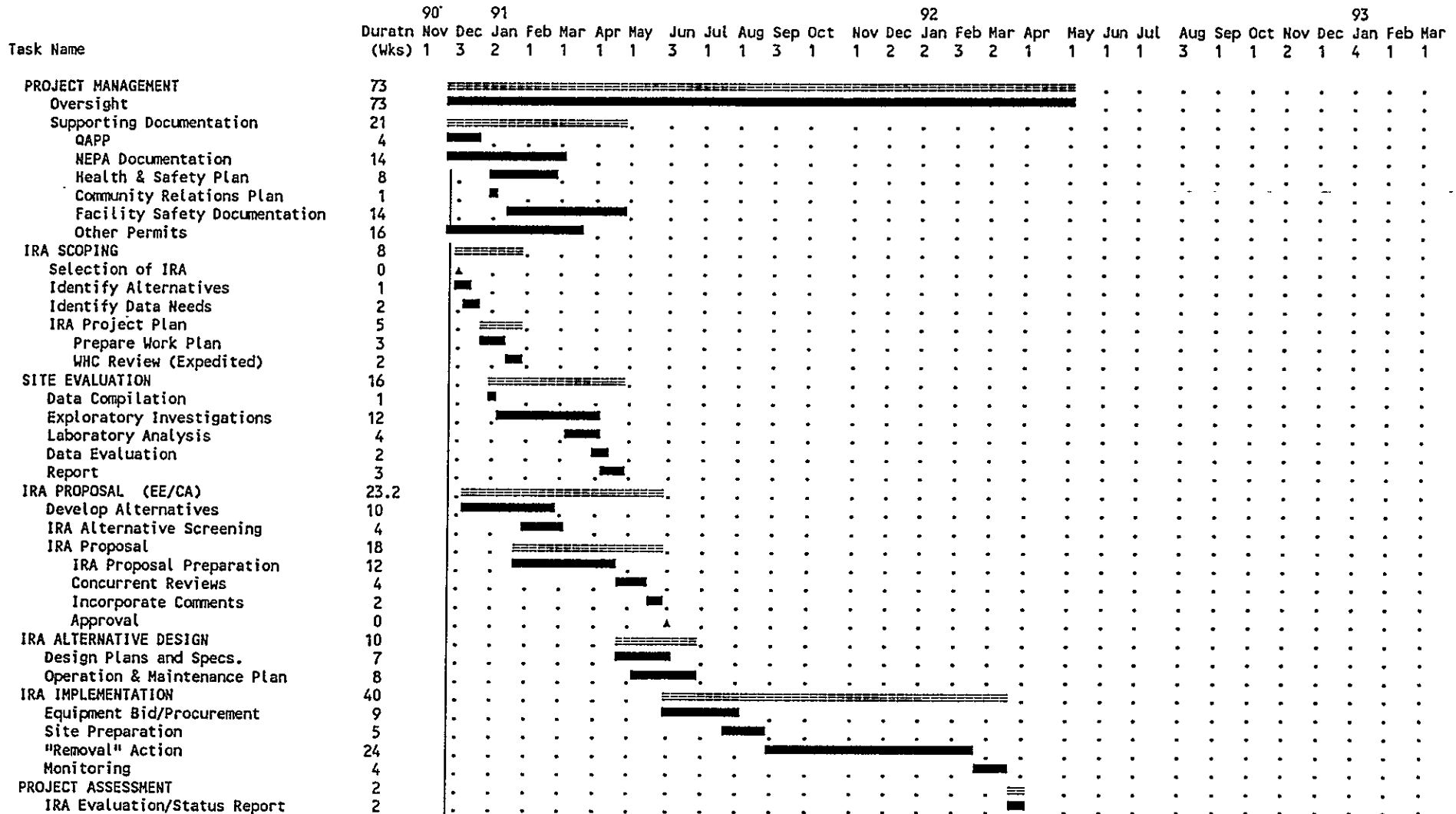
IRA SCHEDULE

The attached schedule for the proposed IRA is preliminary. Additional data about site conditions and health and safety requirements are required to produce an accurate schedule. A final schedule will be provided in the IRA Proposal.

9112056005

Schedule Name : 618-9 Burial Ground, Interim Response Action
 Responsible : J.M. Frain
 As-of Date : 26-Nov-90 Schedule File : C:\TL3\DATA\618-9

Task Package Outline, Schedule



■ Detail Task ■ Summary Task ▲ Milestone
 ■ (Started) ■ (Started) >>> Conflict
 ■ (Slack) ■ (Slack) ■ Resource delay

Scale: 1 week per character

N-SPRINGS GROUNDWATER CONTAMINATION
INTERIM RESPONSE ACTION

Environmental Engineering Remedial Action Section
F. W. Gustafson, Project Engineer

November 26, 1990

9112056007

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3.0	Benefit of Conducting IRA	2
4.0	Concept of the IRA	3
4.1	Goal of the IRA	3
4.2	Measure of Success	3
4.3	Net Results of Implementing the IRA	3
4.4	IRA Implementation Methodology	3
4.5	Cost and Schedule Summaries	5

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B	PROJECT PLAN OUTLINE	B-1
C	ANNOTATED IRA PROPOSAL OUTLINE	C-1
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9112050003

1.0 Introduction

1.1 Purpose

This document provides information on the proposed Interim Response Action (IRA) for the N-Spring sites. The information is presented to the U.S. Environmental Protection Agency (EPA) and the State of Washington Department of Ecology (Ecology) to provide a general understanding of the proposed project which will lead to a decision regarding the continuance of this IRA process. This project was included as a possible alternative or addition to the three projects specifically identified in the Agreement in Principle (Attachment A).

If the IRA process is continued, a comprehensive Interim Response Action Proposal will be prepared as a "Primary Document" per the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). This will allow for public involvement and regulatory approval of the IRA prior to actual implementation of the proposed response action.

1.2 Background

On October 18, 1990, an Agreement in Principle between the United States Department of Energy (DOE), the EPA, and Ecology was signed (Attachment A). This agreement states that three candidate projects will be considered for expedited response actions. The candidate projects under consideration include, but are not limited to:

- 618-9 Burial Ground Remediation;
- 300 Area Process Trenches sediment removal;
- 200-West Area Carbon Tetrachloride treatment.

Per the agreement, DOE is required to propose the selected projects to Ecology and the EPA for their review on the technical basis, costs, and feasibility for implementing these projects. The three parties will jointly propose to the public those projects that meet regulatory approval.

The three proposed projects were selected following a limited evaluation of seven candidate sites. The list of seven sites was originally developed by DOE and EPA. DOE headquarters made the decision to proceed at this time on the three proposed sites, with the other sites being deferred for future consideration. The selection process of the seven sites under consideration was not intended to be a comprehensive evaluation of all possible candidate sites at Hanford. However, it was an attempt to select known sites where such response actions would have merit.

2.0 Site Background

Environmental studies conducted at the Hanford Site have concluded that discharges of contaminated groundwater to the Columbia River at the 100-N Area (via the "N-Springs") contributes up to 80% of the off-site water-borne radiological dose from all of the Hanford Operations. The contribution has been reduced due to the shut-down of the N-Reactor in 1988; but the contribution to the total off-site dose remains substantial. Contaminants reaching the river through the N-Springs were introduced to the groundwater primarily through discharge of reactor effluent water to two facilities, the 1301-N and 1325-N crib and trench systems. The soil column underlying these cribs provided for adsorption and retardation of selected radionuclides contained in the effluent water. Water disposed to the cribs passed through the soil column and entered the groundwater. The volume of water discharged was sufficient to create a mounding effect and alter the normal groundwater flow pattern in that portion of the Hanford Site. The time of travel for the contaminants from the cribs to the Columbia River was sufficient to allow for the decay of short-lived radionuclides. Longer-lived radionuclides and other mobile components of these waste-waters have and do reach the river. The major radiological contaminants noted in the N-Springs discharges include tritium, strontium-90, antimony-125, iodine-131 and cobalt-60.

The 1301-N crib and trench system was used from the time the reactor went on line in 1963 until September of 1985. The crib received waste waters originating primarily from the N-Reactor primary coolant system during reactor operation and other miscellaneous radioactive drainage systems. Waste waters entered the crib at a flow rate of approximately 1,500 gal/min during normal reactor operation. The 1325 crib and trench system was constructed as a replacement for the 1301-N crib and trench system, first receiving waste-waters in 1983. The average flow rate of waste waters to the 1325-N facility was approximately 1,400 gal/min. The major flow of effluent to the 1325 crib and trench system halted in January of 1987. Current discharges to the facility total approximately 1,000 gallons every five days. The 1325-N crib has been identified as a possible disposal facility for the low-level radioactive water currently stored in the N-Reactor Fuel Basins.

3.0 Benefit of Conducting IRA

The recent increase in public awareness of activities that influence the environment has drawn considerable attention to the Hanford Site. One of the major concerns expressed by the public is potential exposure to radiological contaminants via the Columbia River. Many of these concerns would be moderated by substantially reducing the release of the contaminants at N-Springs through implementation of an IRA. The IRA would be perceived by the public as an action which provides a direct benefit to the general populous.

4.0 Concept of the IRA

4.1 Goal of the IRA

The goal of an IRA at the N-Springs site is to minimize the amount of radiological contaminants (primarily Strontium-90), originating primarily from the 1301-N and 1325-N facilities, being released into the Columbia River until the final remediation is achieved through the 100-NR-1 operable unit RFI/CMS process.

4.2 Measure of Success

Success of the IRA will be measured in terms of the number of curies of Strontium-90 removed from the groundwater.

4.3 Net Results of Implementing the IRA

Prompt implementation of an IRA at the N-Springs site would result in a reduction of the water-borne dose due to the Hanford Site within a relative short time-frame. A reduction in the amount of tritium, a major radioactive component of the groundwater present at N-Springs, is not likely because there is currently no viable technology for removing it from the water.

If this IRA is implemented, an alternate disposal facility will have to be identified to handle the effluent currently being disposed of in the 1325-N crib and the water that is to be drained from the N-Reactor fuel storage basin (approximately 1 million gallons).

4.4 IRA Implementation Methodology

The methodology for implementing an IRA at the N-Springs site would follow the format outlined in the Tri-Party Agreement, and the Hanford Site Past Practice Investigation Strategy Document (Draft, October 1990). The IRA is considered to be non-time critical, meaning that a planning period of at least six months exists prior to initiation of the activity. Implementation of a non-time critical IRA calls for an Engineering Evaluation/Cost Assessment to be conducted and submitted to the lead regulatory agency. In the case of the Hanford Site strategy for performing an IRA, the EE/CA will be contained in an IRA Proposal which will provide the additional details necessary for implementing the alternative chosen in the EE/CA.

4.4.1 IRA Project Plan

Initially, an IRA Project Plan will be prepared that identifies each of the alternatives that will be considered by the EE/CA. Based on these alternatives, site specific information that is needed will be identified and a site characterization plan for obtaining this information will be prepared. The site characterization plan will be included in the IRA Project Plan. The

Project Plan will also identify how each phase of the IRA will be implemented. The tentative outline to be followed in preparing the IRA Project Plan is presented in Attachment B. This plan is considered to be a secondary document as defined in the Tri-Party Agreement.

4.4.2 Site Evaluation

Following identification of data needs, site characterization activities will proceed. It is speculated that site characterization activities at the N-Springs site will include performing geophysical and radiological surveys, surface water and sediment sampling, an evaluation of existing wells surrounding the 1301-N and 1325-N cribs, and the installation of additional ground water wells to be used in conducting aquifer and treatment tests as well as being used in implementing the IRA.

4.4.3 IRA Proposal

Preparation of the IRA proposal will proceed as the necessary information from the site evaluation activity is obtained. The EE/CA will be included in the IRA proposal. Attachment C provides an annotated outline of the IRA proposal. Once completed, the proposal will undergo a concurrent DOE-RL, EPA, and Ecology review cycle. The IRA Proposal will also be submitted for a 30 day public review cycle. As specified in the Tri-Party Agreement, the EPA will ultimately be responsible for approving the IRA Proposal taking into consideration Ecologies recommendations.

4.4.4 System Design and Implementation

Following approval of the IRA proposal, the chosen alternative will be implemented. It is anticipated that a pump and treat system, such as an ion-exchange column, will be the preferred alternative. The implementation phase will begin by preparing specific design, and operation and maintenance plans. Once the specific equipment and materials needed are identified procurement of the necessary equipment will be initiated. In order to speed up this process, an experienced contractor may be asked to provide the necessary equipment and operate it until such time as the DOE-RL is ready to assume these responsibilities.

Site preparation will also begin as soon after approval of the IRA Proposal as necessary to allow for the equipment to be installed as it is obtained. Once all the equipment is in place, implementation of the IRA will begin. As part of the IRA, a detailed monitoring plan will be implemented that will allow for the direct measurement of the effectiveness of the response and to ensure that the alternative is being implemented as efficiently and effectively as possible.

4.4.5 Reporting

A yearly status report will be prepared that documents the success of the IRA activities that were conducted during the past year. A final IRA evaluation/assessment report will be prepared upon conclusion of the IRA activities.

4.5 Cost and Schedule Summaries

If the decision to proceed with this IRA is provided by December 3, 1990, site characterization activities would begin as early as mid January 1991. The IRA proposal would be submitted for regulatory review in late April 1991, with final approval scheduled for July 1991. Procurement and installation of the approved treatment system would begin in early August with system startup occurring early in 1992. A schedule for implementing the IRA is provided in attachment E.

Approximately 9 million dollars would be required for fiscal year 1991. The total project cost is estimated at approximately 13 million dollars. An annual operation cost for the systems is approximated at six hundred thousand dollars. A breakdown of the cost estimates for each task is provided in Attachment D.

911205000

ATTACHMENT A
AGREEMENT IN PRINCIPLE

9112255004

AGREEMENT IN PRINCIPLE
Between the United States Department of Energy,
the United States Environmental Protection Agency,
and the State of Washington

THIS AGREEMENT is entered into between the United States Department of Energy (DOE), the United States Environmental Protection Agency (EPA), and the State of Washington.

WHEREAS, the parties to this AGREEMENT have previously entered into the Hanford Federal Facility Agreement and Consent Order on May 15, 1989, (Tri-Party Agreement) to provide for the coordinated efforts of all parties to assure compliance of DOE Hanford Site activities with requirements of the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), including corrective actions and remedial actions required by those Acts, and applicable state law; and

WHEREAS, the parties have pursuant to RCRA, CERCLA and the Tri-Party Agreement instituted the process of conducting CERCLA remedial investigations and feasibility studies (RI/FS) and RCRA facility assessments and corrective measures studies (RFI/CMS) of operable units on the Hanford Site; and

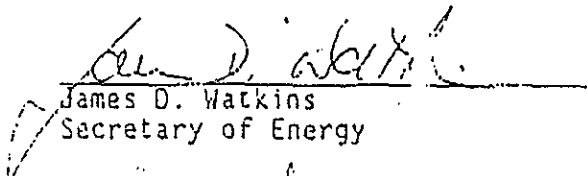
WHEREAS, the parties are desirous of taking immediate steps to accelerate the physical restoration of the Hanford Site prior to completion of RI/FS and RFI activities through performance of expedited response actions;

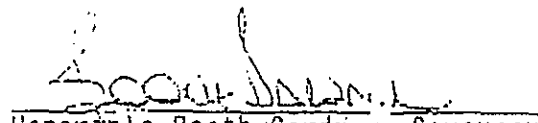
NOW, THEREFORE, DOE, EPA, and the State of Washington agree as follows:

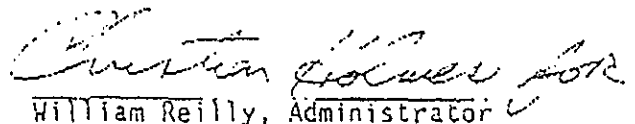
1. That each party reaffirms its commitment to the Tri-Party Agreement.
2. That USDOE reaffirms its obligations and commitment to seek sufficient funding from Congress to meet all existing milestones in the Tri-Party Agreement and future new milestones or revised milestones established by agreement of the parties in accordance with Article XL of the Tri-Party Agreement.
3. DOE has identified a list of potential Hanford Site projects which may be considered for expedited response actions. Candidate projects under consideration for expedited response actions
 - a. 618-9 Burial Ground Remediation
 - b. 300 Area Process Trenches Sediment Removal
 - c. 200 West Area Carbon Tetrachloride Treatment.
4. DOE will propose the selected projects to Ecology and EPA for their review of the technical basis, costs and feasibility for these projects. The three parties will jointly propose to the public those projects if they meet regulatory approval. The three parties will follow the public involvement procedures of the Tri-Party Agreement and the CERCLA National Contingency Plan.

5. Following regulatory and public review, DOE commits to implementing these three candidate projects, or other appropriate projects from the list, pursuant to a schedule agreed upon by the three parties. DOE commits to the implementation of these projects as additions to the Tri-Party Agreement and without an impact on the existing milestones of the Tri-Party Agreement.
6. In order to understand the total activities under consideration and to establish a baseline for the activity which can be used as a basis for decisions and against which progress can be measured, the initial step for each of the potential projects is the development of a detailed cost estimate based upon that plan.
7. These activities will be conducted in a manner consistent with prudent management and will serve as a model for future activities in the Environmental Restoration and Waste Management Program.
8. The parties will use their best efforts to complete the steps identified in the foregoing paragraphs as soon as practical.

NOW, THEREFORE, the parties hereto have signed this AGREEMENT in recognition of their pledge of mutual best efforts to achieve through cooperation and negotiation, in good faith, the understandings as set forth above on this 18th day of October, 1990.


James D. Watkins
Secretary of Energy


Honorable Booth Gardner, Governor
State of Washington


William Reilly, Administrator
U. S. Environmental Protection
Agency

ATTACHMENT B
PROJECT PLAN OUTLINE

9112056007

IRA Project Plan

1.0 Introduction

- 1.1 Purpose
- 1.2 Background
- 1.3 Organization

2.0 Site Characteristics

2.1 Physical Characteristics

- 2.1.1 Waste Facilities
- 2.1.2 Geology/Soils
- 2.1.3 Hydrogeology

2.2 Nature and Extent of Contamination

- 2.2.1 Contamination Sources
- 2.2.2 Air Contamination
- 2.2.3 Soil Contamination
- 2.2.4 Groundwater Contamination
- 2.2.5 Other

3.0 Preliminary Screening of Alternatives

4.0 Site Evaluation Tasks

5.0 IRA Proposal Tasks

6.0 IRA Design and Implementation Tasks

7.0 Project Schedule

8.0 References

ATTACHMENTS

- Attachment 1 Sampling and Analysis Plan/QAPP
- Attachment 2 Health and Safety Plan
- Attachment 3 Project Management Plan
- Attachment 4 Data Management Plan
- Attachment 5 Community Relations Plan
- Attachment 6 Memos, Letters

ATTACHMENT C
ANNOTATED IRA PROPOSAL OUTLINE

91120560079

Interim Response Action Proposal

1.0 Introduction

The introduction will define the purpose and scope of the IRA proposal. The discussion will include the various reasons and requirements for performing the IRA. The relationship between the IRA and the ongoing Remedial Investigation/Feasibility Study activities will also be described.

2.0 Site Description

This section will provide a brief description of the site being considered for an IRA. A summary of the information that is pertinent to the selection of the preferred alternative will be included. This information will be provided in a site characterization summary report.

3.0 Description of the IRA Alternatives

This section will develop the various IRA Alternatives being considered. This section does not attempt to evaluate the IRA alternatives. Below find an outline of the contents of this section.

3.1 IRA Alternative Name

- 3.1.1 Description of Alternative
- 3.1.2 Requirements for Implementing Alternative
- 3.1.3 Impact on Future Restoration Activities
- 3.1.4 Maintenance Requirements
- 3.1.5 Cost Estimates

4.0 Evaluation Criteria

Each of the criteria that is to be used to evaluate the IRA alternatives described in Section 3.0 are identified in this section. The method of scoring the alternatives against these criteria will also be explained. The types of evaluation criteria utilized will be based on the EPA's "Nine criteria for evaluation" as listed in 40 CFR Part 300.430, which are as follows:

- 1) Overall protection of human health and the environment;
- 2) Compliance with applicable or relevant and appropriate requirements;
- 3) Long-term effectiveness and permanence;
- 4) Reduction of toxicity, mobility or volume through treatment;
- 5) Short-term effectiveness;
- 6) Implementability;
- 7) Cost;
- 8) Regulatory Acceptance;
- 9) Community Acceptance.

5.0 Selection of Alternatives

The purpose of this section is to select the preferred IRA alternative. Each alternative developed in section 3.0 will be evaluated for implementation using the criteria listed in section 4.0.

6.0 Preferred IRA Alternatives Implementation

This section will provide a discussion detailing the implementation of the preferred IRA alternatives chosen in Section 5.0. All procedures that will be used, or that need development will be identified. All permits, such as excavation permits and Hazardous Waste Operations Permits will also be mentioned. Health and Safety, waste management, waste minimization and environmental monitoring will be discussed herein.

7.0 Project Management Plan

Each of the organization that will participate in the implementation of the IRA and their roles will be identified in this section. A flow chart showing the management structure, a detailed schedule for implementation, and cost estimates for implementing the IRA activity will also be provided.

ATTACHMENT D
IRA COST ESTIMATE

The attached cost estimate for the proposed IRA is preliminary and should be considered rough order-of-magnitude. A definitive cost estimate will be provided in the IRA proposal for the selected remediation alternative.

91120560102

TASK	FTE/YR	DURATION (YEARS)	FTE	
1.0 PROJECT MANAGEMENT				
PROGRAM MANAGER	0.25			
PROJECT MANAGER	0.34			
PROJECT ENGINEER	1.25			
CLERK/TYPIST	0.5			
	2.34	1.5	3.51	
QUALITY ASSURANCE	0.125			
HEALTH & SAFETY	0.125			
COMMUNITY RELATIONS	0.125			
FACILITY SAFETY DOC.	0.125			
NEPA	0.25			
OPERATING PERMITS	0.25			
	1	1.5	1.5	
TRAVEL/TRAINING	0.5	1	0.5	
		TOTAL	5.06	\$506K
ASSUME \$100,000/FULL TIME EQUIVALENT (FTE)				
2.0 IRA SCOPING				
ALTERNATIVE IDENTIFICATION			0.154	
IDENTIFY DATA NEEDS			0.154	
IRA PROJECT PLAN			0.212	
		TOTAL	0.52	\$52K
3.0 SITE EVALUATION				
3.1 SOURCE INVESTIGATION				\$150K
3.2 GEOLOGICAL INVESTIGATION				\$35K
3.3 SURFACE WATER AND SEDIMENT ANALYSIS				\$1,500K
3.4 GROUNDWATER INVESTIGATION				\$3,800K
3.5 SUMMARY REPORT				\$132K
		TOTAL		\$5,617K

4.0 IRA PROPOSAL

EF/CA	1 FTE	
WRITE PROPOSAL	0.3	
REVIEW & APPROVAL	0.2	
TOTAL FTE	1.6	\$160K

0% COST CONTINGENCY WAS APPLIED TO TASK 1 THRU 4

\$1,300K

Total cost for tasks 1 thru 4

\$7,635K

...IVE DESIGN

\$140K

ASSUMED 10% OF THE TOTAL EQUIPEMENT COST FOR DESIGN SECIFICATIONS AND DEVELOPING
OPERATION AND MAINTENANCE PLANS

6.0 IRA IMPLEMENTATION

EQUIPEMENT BID AND PROCUREMENT	\$1,400K
SITE PREPARATION	\$1,200K
EQUIPEMENT INSTALLATION	\$1,200K
SYSTEM SHAKEDOWN AND START-UP	\$197K

7.0 PROJECT ASSESSMENT/EVALUATION

\$25K

A 30% COST CONTINGENCY WAS APPLIED TO TASKS 5-7

\$1,250K

Total cost for tasks 1 thru 4	\$7,635K
Total cost for tasks 5 thru 7	\$5,412K
Total Project Costs	\$13,047K

Annual System Operating Costs	\$850K
-------------------------------	--------

ATTACHMENT E

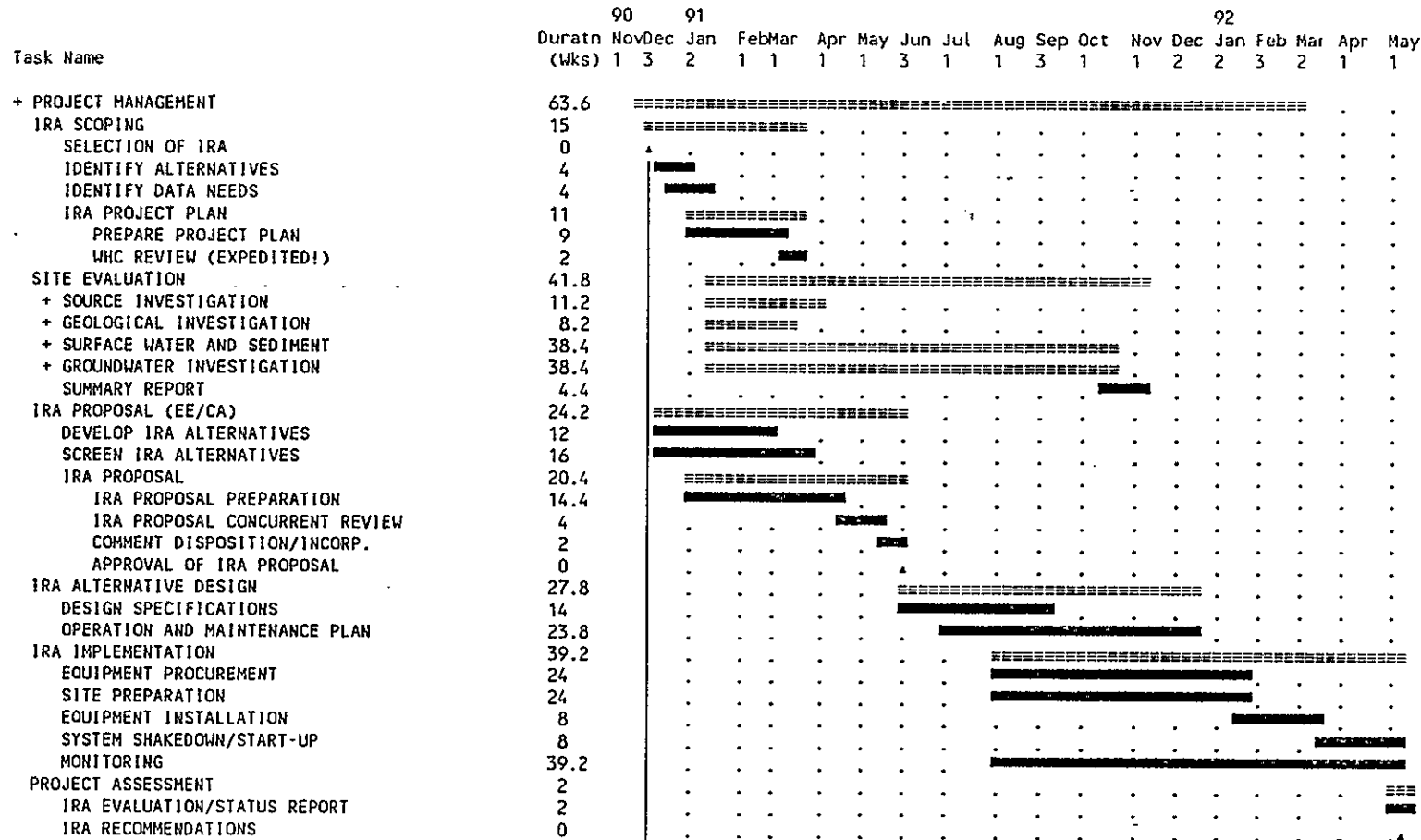
IRA SCHEDULE

The attached schedule for the proposed IRA is preliminary. Additional data about site conditions and health and safety requirements are required to produce an accurate schedule. A final schedule will be provided in the IRA Proposal.

911205010

9 1 1 2 0 5 6 0 1 0 6

Schedule Name : N-SPRINGS IRA
 Responsible : F. W. GUSTAFSON
 As-of Date : 28-Nov-90 Schedule File : C:\TL3\DATA\N-SPRING



 ■ Detail Task ■■■■ Summary Task ▲ Milestone
 .. (Started) ■■■■ (Started) >>> Conflict
 ■ (Slack) ■■■■ (Slack) .. Resource delay
 ----- Scale: 1 week per character -----

200-W AREA CARBON TETRACHLORIDE
INTERIM RESPONSE ACTION

Environmental Engineering Remedial Action Section
M. C. Hagood, Project Engineer

November 26, 1990

9112056017

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ATTACHMENTS

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1.0 INTRODUCTION

1.1 Purpose

This document provides information on the proposed Interim Response Action (IRA) for the 200-West Carbon Tetrachloride Disposal Sites. The information is presented to the U.S. Environmental Protection Agency (EPA) and the State of Washington Department of Ecology (Ecology) to provide a general understanding of the proposed project, which will lead to a decision regarding the continuance of this IRA process.

If the IRA process is continued, a comprehensive Interim Response Action Proposal will be prepared as a "Primary Document" per the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). This will allow for public involvement and regulatory approval of the IRA prior to actual implementation of the proposed response action.

1.2 Background

On October 18, 1990, an Agreement in Principle between the U.S. Department of Energy (DOE), the EPA and Ecology was signed (Attachment A). This agreement states that three candidate projects will be considered for expedited response actions. The agreement states that candidate projects under consideration include, but are not limited to:

- o 618-9 Burial Ground Remediation
- o 300 Area Process Trenches sediment removal
- o 200-West Area Carbon Tetrachloride treatment

Per the agreement, DOE is required to propose the selected project to Ecology and the EPA for their review of the technical basis, costs, and feasibility for implementing these projects. The three parties will jointly propose to the public those projects that meet regulatory approval.

The three proposed projects were selected following a limited evaluation of seven candidate sites. The list of seven sites was originally developed by DOE and EPA. DOE headquarters made the decision to proceed at this time on the three proposed sites, with the other sites being deferred for future consideration. The selection process of the seven sites under consideration was not intended to be a comprehensive evaluation of all possible candidate sites at Hanford. However, it was an attempt to select known sites where such response actions would have merit.

2.0 SITE DESCRIPTION

2.1 Site Location and Waste Streams

Aqueous and organic wastes from plutonium recovery processes, operated at Z-Plant in the 200-W Area, were discharged primarily to three liquid waste disposal facilities: the 216-Z-9 Trench, the 216-Z-1A Tile Field, and the 216-Z-18 Crib (Figure 1). These sites are located within the 200-ZP-1 Operable Unit. The aqueous waste stream, characterized as a high-salt aqueous waste, was primarily a concentrated (5M to 6M), acidic (pH ~ 1.0), sodium nitrate solution. In addition to the aqueous phase, organic liquids consisting of carbon tetrachloride (CCl_4), tributylphosphate (TBP), and dibutylbutylphosphonate (DBBP) occurred in saturation amounts in the aqueous phase and were also discharged separately in batches. Less than five percent of the volume of high-salt aqueous waste consisted of the organic component (Kasper 1982). Actinide-bearing waste liquid from the chemical processes used to purify plutonium was also disposed to the three disposal sites. The primary radionuclide component of this liquid waste was plutonium-239/240.

2.1.1 216-Z-9 Trench

The 216-Z-9 Trench was built for the disposal of both organic and aqueous plutonium waste solutions from the Recuplex Plutonium Scrap Recovery Facility in the 234-5Z Plant. The 216-Z-9 Trench received Recuplex high-salt, aqueous waste and organic waste from July 1955 to June 1962. The total volume of liquid discharged was $4.09\text{E}+06$ liters. The Recuplex inputs to the Trench included: 109 metric tons of organic as 15-25% TBP in CCl_4 , DBBP, and trace MBP; and 54 metric tons of organic as "fab oil" (a mixture of 50% CCl_4 /50% lard oil used as a cutting oil during the machining of plutonium) (Owens 1981). The 216-Z-9 Trench received 48 kg of plutonium (Owens 1981).

2.1.2 216-Z-1A Tile Field

In 1964, the 216-Z-1A Tile Field was reactivated to receive aqueous and organic waste from the Plutonium Reclamation Facility in the 236-Z Building and the 242-Z Waste Treatment and Americium Recovery Building. The Tile Field received approximately $5.2\text{E}+06$ liters of waste between June 1964 and June 1969 (Price and others, 1979). The amount of organic material being discharged to the Tile Field in 1967 was estimated to be: 80 volume % CCl_4 /20 volume % TBP at a rate of 4400 gal/yr; 70 volume % CCl_4 /30 volume % DBBP at a rate of 6600 gal/yr. Fab oil was not included in these estimates because of its intermittent processing and the relatively small volume involved at that time. In 1967, about 6000 gallons of fab oil remained in storage to be processed and routed to 216-Z-1A (Sloat 1967). If the rate of input of organic remained constant during the five year period (1964-1969), the crib would have received about 245 metric tons of CCl_4 .

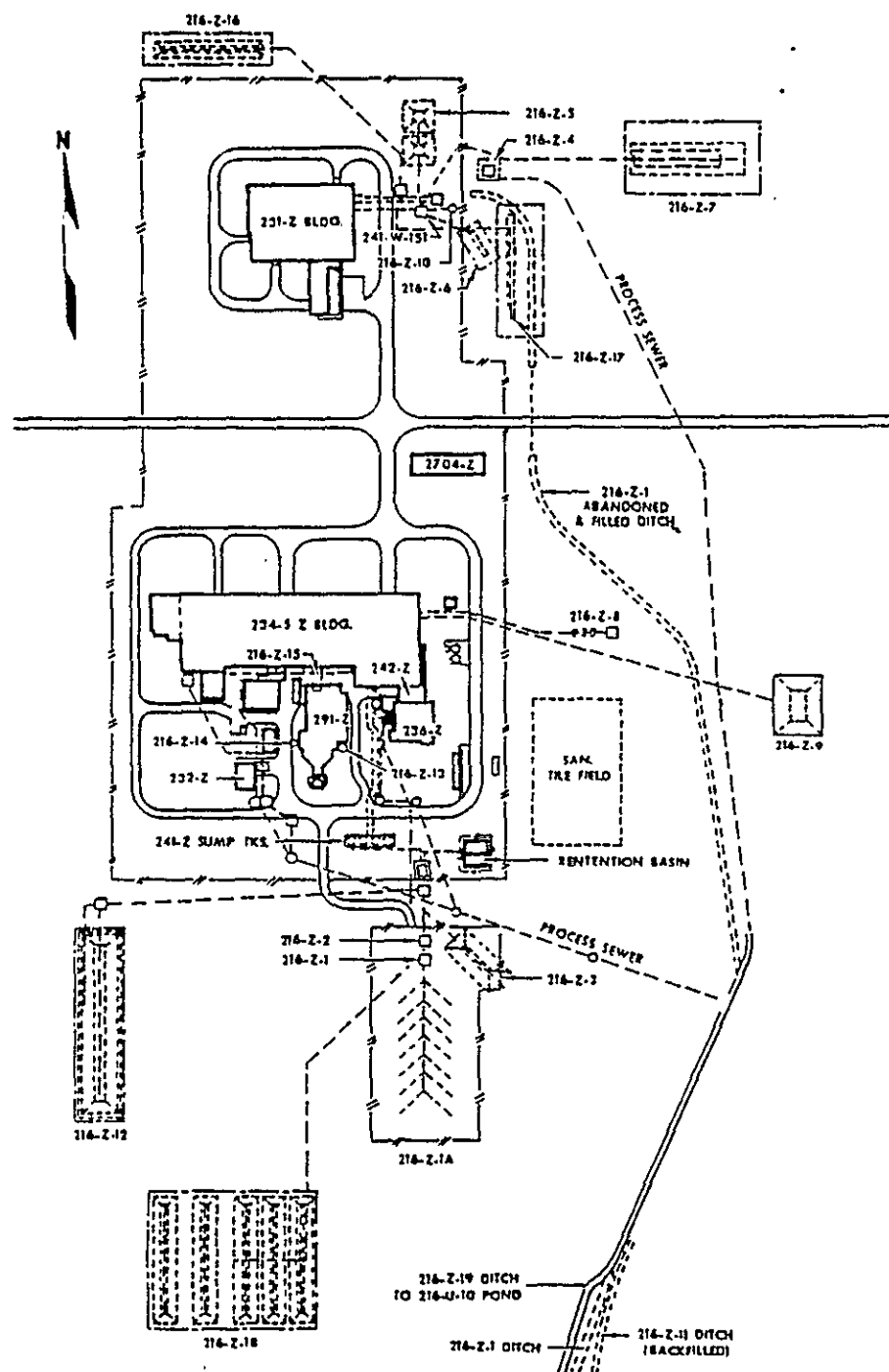


Figure 1. Z Plant Liquid Waste Sites.

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The 216-Z-1A Tile Field also received an estimated 57 kg of plutonium (Owens, 1981). In 1979 at the 216-Z-1A Tile Field, the highest measured concentrations of plutonium-239/240 ($4\text{E}+04$ nCi/g) and americium-241 ($2.5\text{E}+03$ nCi/g) occurred in sediments located immediately beneath the crib. The concentration of actinides in sediments generally decreased with depth beneath the crib, with the exception of silt-enriched horizons and boundary areas between major sedimentary units. The maximum vertical penetration of actinide contamination (defined by the $1\text{E}-02$ nCi/g isopleth) was located approximately 100 feet below the bottom of the crib. The estimated lateral extent of contamination is located within a 30-foot wide zone around the crib (Price and others, 1979).

2.1.3 216-Z-18 Crib

The use of the 216-Z-1A Crib was terminated in 1969, and the waste stream was re-routed to the 216-Z-18 Crib. The 216-Z-18 Crib received a total of $3.86\text{E}+06$ liters of waste from June 1969 to May 1973 (Owens 1981). The hazardous chemical inventory in the Waste Information Data System database indicates 260 metric tons of CCl_4 , 15 metric tons of DBP, and 22 metric tons of TBP were discharged to the 216-Z-18 Crib. The Crib also received 23 Kg of plutonium (Owens 1981).

2.2 Distribution of Contaminants

The extent of CCl_4 contaminated groundwater currently stands in excess of seven square miles. Carbon tetrachloride concentrations over 100 times the maximum contaminant level (MCL) have been detected more than one-half mile upgradient of the disposal site and within five miles of the Hanford Site boundary. It is likely that CCl_4 concentrations in groundwater exceed the MCL at locations much nearer the site boundary.

The amount of CCl_4 (and other organics) in the soil column beneath the three disposal sites is presently unknown. However, the volume of CCl_4 disposed to the three sites is considered to have been insufficient to reach the groundwater, and most of the CCl_4 is suspected to remain in the soil column. Because of its volatile nature, the CCl_4 likely migrates in the vapor phase and dissolves into the aquifer. This migration and deposition transport mechanism allows the CCl_4 to move independent of groundwater flow direction. Therefore, it is suspected that the contaminated soil column beneath the disposal sites continues to act as a source of CCl_4 contamination in the vadose and groundwater away from these three disposal sites.

3.0 BENEFIT OF THE INTERIM RESPONSE ACTION

Under the current Tri-Party Agreement schedule, the 200-ZP-1 Operable Unit work plan will not be submitted until February 1992. With the current work plan approval process and an estimated Remedial Investigation/Feasibility Study (RI/FS) duration of five years, a record of decision would likely not be received until after the CCl_4 had migrated substantially through the 200-West Area and potentially off the Hanford Site. Using the present conceptual model of contaminant distribution, a vapor extraction IRA performed in the vadose zone could stabilize the plume and limit the spread of both on and off the site. If not initiated in the short term, the contamination could be irreversible, and remediation would be much more costly in the future. Prompt action would also limit the impact of this contamination on other cleanup activities in the 200-West Area and reduce the exposure of site workers to a known carcinogen. Because of the nature of the contaminant, and the sediments beneath the disposal sites, this project has a very good chance of success and would be perceived by the public as an action which provides a benefit to the environment, general populous, and Hanford workers.

4.0 CONCEPT OF THE IRA

4.1 Goal of the IRA

The goal of the IRA at the 200-West Carbon Tetrachloride Disposal Sites is to minimize or stabilize the spread of CCl_4 laterally within the vadose zone beneath, and away from, the 216-Z-1A Tile Field, 216-Z-9 Trench and 216-Z-18 Crib. This action would be conducted until final clean-up can be achieved through the 200-ZP-1 Operable Unit RI/FS.

4.2 Measure of Success

Success of the IRA implemented at the three disposal sites will be measured in terms of the number of pounds of carbon tetrachloride (and other volatile organics) removed from the vadose zone.

4.3 Net Results of IRA

Prompt implementation of an IRA at the Carbon Tetrachloride Disposal Sites would minimize the risk that CCl_4 in the vadose zone would move laterally away from the three disposal sites and contribute to vadose and groundwater contamination elsewhere within the 200-West Area and off the Hanford Site. The interim action will eventually be integrated with the 200-ZP-1 Operable Unit Feasibility Study and any associated remedial action.

This IRA will not be performed on the CCl_4 found in the groundwater in the 200-West Area due to the complexity of recovering the CCl_4 when mixed with various radioactive contaminants. Other groundwater contaminants which currently intersect the CCl_4 groundwater plume in the 200-West Area include:

cyanide, fluoride, hexavalent chromium, trichloroethylene, nitrate, tritium, technetium-99, iodine-129, and uranium (Evans and others 1990).

4.4 IRA Implementation

The process for implementing an IRA at the 200-West Area Carbon Tetrachloride Disposal Sites would follow the format outlined in the Tri-Party Agreement, and the Hanford Site Past Practice Investigation Strategy Document (Draft, October 1990). The IRA is considered to be non-time critical, meaning that a planning period of at least six months exists prior to initiation of the activity. Implementation of a non-time critical IRA requires an Engineering Evaluation/Cost Assessment (EE/AC) to be conducted and submitted to the lead regulatory agency (EPA). In the case of the Hanford Site strategy for performing an IRA, the EE/CA will be contained in an IRA Proposal which will provide the additional details necessary for implementing the alternative chosen in the EE/CA. The outline of the IRA implementation work flow is briefly described below.

4.4.1 IRA Project Plan

Initially, a brief IRA Project Plan will be prepared that outlines how each phase of the IRA is implemented (Attachment B). The project plan identifies each of the remediation alternatives (that will be considered by the EE/CA) and the site evaluation tasks necessary to evaluate the alternatives. This plan is considered to be a secondary document as defined in the Tri-Party Agreement.

4.4.2 Site Evaluation

The principal purpose of site evaluation is to verify and refine the conceptual model of contaminant identity and distribution, and the physical characteristics of the vadose zone, to complete the IRA evaluation. In addition, data is used to assess worker health and safety. Site evaluation will be completed by reviewing existing data, performing non-intrusive work (i.e. soil gas analysis from existing wells), and possibly drilling and sampling (outside the zone of radioactive contaminated soil). Non-intrusive work is to be emphasized due to the costs, durations, and safety hazards associated with drilling and sampling in the radioactive soils beneath the three disposal sites. Site evaluation will be conducted in a phased approach and in parallel with the preparation of the EE/CA.

4.4.3 IRA Proposal and IRA Action Memorandum

The IRA Proposal includes an analysis of the various remediation alternatives. The EE/CA provides refinement and specification of the alternatives, followed by a detailed analysis based on 1) public health, welfare and environmental impacts, 2) technical feasibility, 3) institutional considerations, and 4) cost (Quinn and others 1987). Attachment C provides an annotated outline for the IRA proposals.

9 1 1 2 0 5 3 0 1 1 5

The EE/CA report is documented in the IRA proposal, and undergoes a concurrent DOE, EPA, and Ecology review. The public will also review the document. As specified in the Tri-Party Agreement, the EPA will ultimately be responsible for selecting a remediation alternative for implementation by issuing an ERA Action Memorandum.

4.4.4 Design and Implementation

Following approval of the IRA Proposal, the chosen alternative will be designed and implemented. It is anticipated that a vapor extraction system will be installed, using existing wells in the vicinity of the three disposal sites to recover the CCl_4 . Additional wells may be installed around the perimeter of the facilities (outside the soil column contaminated with radioactive waste) in a phased approach for increased efficiency. The recovery action would continue until the existing contaminant plume in the vadose zone is stabilized. The treatment technology for recovery of volatile organics is commercially available. Operation and monitoring plans will be prepared prior to implementation.

4.4.5 Reporting

A yearly status report will be prepared that documents the progress of the IRA during the past year. A final IRA evaluation/assessment report will be prepared upon completion of the IRA.

4.5 Cost and Schedule Summary

The preliminary schedule and estimated cost for the IRA are provided in Attachments A and B, respectively.

5.0 REFERENCES

Evans, J.C., Bryce, R. W., Bates, D.J., and Kemner, M.L., 1990, Hanford Site Ground-Water Surveillance for 1989, PNL-7396.

Kasper, R.B., 1982, 216-Z-12 Transuranic Crib Characterization: Operational History and Distribution of Plutonium and Americium, RHO-ST-44.

Owens, K.W., 1981, Existing Data on the 216-Z Liquid Waste Sites, RHO-LD-114.

Quinn, R.D., W.M. Kaschak, J.S. Paquette, W.L. Sydow, 1987, The U.S. EPA's Expedited Response Action Program: Hazardous Material Control Management Series; Site Remediation, Vol. 3, Silver Springs, Maryland.

Price, S.M., Kasper, R.B., Additon, M.K., Smith, R.M., and Last, G.V., 1979, Distribution of Plutonium and Americium beneath the 216-Z-1A Crib: A Status Report, RHO-ST-17.

Sloat, R.J., 1967, Hanford Low Level Waste Management Reevaluation Study, ARH-231.

ATTACHMENT A
AGREEMENT IN PRINCIPLE

91120550116

AGREEMENT IN PRINCIPLE
Between the United States Department of Energy,
the United States Environmental Protection Agency,
and the State of Washington

THIS AGREEMENT is entered into between the United States Department of Energy (DOE), the United States Environmental Protection Agency (EPA), and the State of Washington.

WHEREAS, the parties to this AGREEMENT have previously entered into the Hanford Federal Facility Agreement and Consent Order on May 15, 1989, (Tri-Party Agreement) to provide for the coordinated efforts of all parties to assure compliance of DOE Hanford Site activities with requirements of the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), including corrective actions and remedial actions required by those Acts, and applicable state law; and

WHEREAS, the parties have pursuant to RCRA, CERCLA and the Tri-Party Agreement instituted the process of conducting CERCLA remedial investigations and feasibility studies (RI/FS) and RCRA facility assessments and corrective measures studies (RFI/CMS) of operable units on the Hanford Site; and

WHEREAS, the parties are desirous of taking immediate steps to accelerate the physical restoration of the Hanford Site prior to completion of RI/FS and RFI activities through performance of expedited response actions;

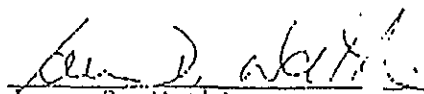
NOW, THEREFORE, DOE, EPA, and the State of Washington agree as follows:

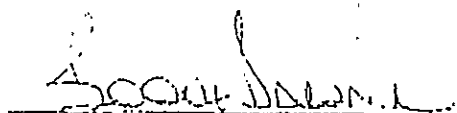
1. That each party reaffirms its commitment to the Tri-Party Agreement.
2. That USDOE reaffirms its obligations and commitment to seek sufficient funding from Congress to meet all existing milestones in the Tri-Party Agreement and future new milestones or revised milestones established by agreement of the parties in accordance with Article XL of the Tri-Party Agreement.
3. DOE has identified a list of potential Hanford Site projects which may be considered for expedited response actions. Candidate projects under consideration for expedited response actions, include, but are not limited to:
 - a. 618-9 Burial Ground Remediation
 - b. 300 Area Process Trenches Sediment Removal
 - c. 200 West Area Carbon Tetrachloride Treatment.
4. DOE will propose the selected projects to Ecology and EPA for their review of the technical basis, costs and feasibility for these projects. The three parties will jointly propose to the public those projects if they meet regulatory approval. The three parties will follow the public involvement procedures of the Tri-Party Agreement and the CERCLA National Contingency Plan.

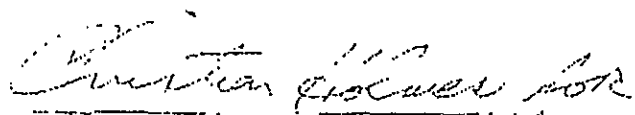
91120530117

- 9 1 1 2 0 5 3 0 1 1 3
5. Following regulatory and public review, DOE commits to implementing these three candidate projects, or other appropriate projects from the list, pursuant to a schedule agreed upon by the three parties. DOE commits to the implementation of these projects as additions to the Tri-Party Agreement and without an impact on the existing milestones of the Tri-Party Agreement.
 6. In order to understand the total activities under consideration and to establish a baseline for the activity which can be used as a basis for decisions and against which progress can be measured, the initial step for each of the potential projects is the development of a detailed cost estimate based upon that plan.
 7. These activities will be conducted in a manner consistent with prudent management and will serve as a model for future activities in the Environmental Restoration and Waste Management Program.
 8. The parties will use their best efforts to complete the steps identified in the foregoing paragraphs as soon as practical.

NOW, THEREFORE, the parties hereto have signed this AGREEMENT in recognition of their pledge of mutual best efforts to achieve through cooperation and negotiation, in good faith, the understandings as set forth above on this 18th day of October, 1990.


James D. Watkins
Secretary of Energy


Honorable Booth Gardner, Governor
State of Washington


William Reilly, Administrator
U. S. Environmental Protection
Agency

ATTACHMENT B
PROJECT PLAN OUTLINE

91129530119

IRA Project Plan

1.0 Introduction

- 1.1 Purpose
- 1.2 Background
- 1.3 Organization

2.0 Site Characteristics

2.1 Physical Characteristics

- 2.1.1 Waste Facilities
- 2.1.2 Geology/Soils
- 2.1.3 Hydrogeology

2.2 Nature and Extent of Contamination

- 2.2.1 Contamination Sources
- 2.2.2 Air Contamination
- 2.2.3 Soil Contamination
- 2.2.4 Groundwater Contamination
- 2.2.5 Other

3.0 Preliminary Screening of Alternatives

4.0 Site Evaluation Tasks

5.0 IRA Proposal Tasks

6.0 IRA Design and Implementation Tasks

7.0 Project Schedule

8.0 References

ATTACHMENTS

- Attachment 1 Sampling and Analysis Plan/QAPP
- Attachment 2 Health and Safety Plan
- Attachment 3 Project Management Plan
- Attachment 4 Data Management Plan
- Attachment 5 Community Relations Plan
- Attachment 6 Memos, Letters

91122530100

ATTACHMENT C
ANNOTATED IRA PROPOSAL OUTLINE

9112050121

Interim Response Action Proposal

1.0 Introduction

The introduction will define the purpose and scope of the IRA proposal. The discussion will include the various reasons and requirements for performing the IRA. The relationship between the IRA and the ongoing Remedial Investigation/Feasibility Study activities will also be described.

2.0 Site Description

This section will provide a brief description of the site being considered for an IRA. A summary of the information that is pertinent to the selection of the preferred alternative will be included. This information will be provided in a site characterization summary report.

3.0 Description of the IRA Alternatives

This section will develop the various IRA Alternatives being considered. This section does not attempt to evaluate the IRA alternatives. Below find an outline of the contents of this section.

3.1 IRA Alternative Name

- 3.1.1 Description of Alternative
- 3.1.2 Requirements for Implementing Alternative
- 3.1.3 Impact on Future Restoration Activities
- 3.1.4 Maintenance Requirements
- 3.1.5 Cost Estimates

4.0 Evaluation Criteria

Each of the criteria that is to be used to evaluate the IRA alternatives described in Section 3.0 are identified in this section. The method of scoring the alternatives against these criteria will also be explained. The types of evaluation criteria utilized will be based on the EPA's "Nine criteria for evaluation" as listed in 40 CFR Part 300.430, which are as follows:

- 1) Overall protection of human health and the environment;
- 2) Compliance with applicable or relevant and appropriate requirements;
- 3) Long-term effectiveness and permanence;
- 4) Reduction of toxicity, mobility or volume through treatment;
- 5) Short-term effectiveness;
- 6) Implementability;
- 7) Cost;
- 8) Regulatory Acceptance;
- 9) Community Acceptance.

5.0 Selection of Alternatives

The purpose of this section is to select the preferred IRA alternative. Each alternative developed in section 3.0 will be evaluated for implementation using the criteria listed in section 4.0.

6.0 Preferred IRA Alternatives Implementation

This section will provide a discussion detailing the implementation of the preferred IRA alternatives chosen in Section 5.0. All procedures that will be used, or that need development will be identified. All permits, such as excavation permits and Hazardous Waste Operations Permits will also be mentioned. Health and Safety, waste management, waste minimization and environmental monitoring will be discussed herein.

7.0 Project Management Plan

Each of the organization that will participate in the implementation of the IRA and their roles will be identified in this section. A flow chart showing the management structure, a detailed schedule for implementation, and cost estimates for implementing the IRA activity will also be provided.

ATTACHMENT D
IRA COST ESTIMATE

The attached cost estimate for the proposed IRA is preliminary and should be considered rough order-of-magnitude. A definitive cost estimate will be provided in the IRA proposal for the selected remediation alternative.

91120530174

1.0 Project Management

Program Manager	25,000
Projects Manager	34,000
Project Engineer	125,000
Clerk/Typist	<u>50,000</u>
	= 234,000

Quality Assurance	12,500
Health/Safety	12,500
Community Relations	12,500
Facility Safety	12,500
NEPA	12,500
Other Permits	12,500
Travel/Training	<u>50,000</u>
	= 125,000

2.0 IRA Scoping

Alternative Identification	15,000
Identify Data Needs	10,000
IRA Project Plan	<u>20,000</u>
	= 45,000

3.0 Site Evaluation (First Phase)

Data Compilation	25,000
Field Investigations	1,178,000
Laboratory Analysis	800,000
Data Evaluation	150,000
Report Writing	<u>33,000</u>
	= 2,186,000

4.0 IRA Proposal

EE/CA	100,000
Field Test	400,000
Write Proposal	33,000
Review/Approval	<u>20,000</u>
	= 553,000

Subtotal = 3,143,000
20 % Contingency = 628,600

Total Estimate Through IRA Proposal = 3,771,600

5.0 IRA Alternative Design = 300,000

6.0 IRA Implementation = 6,000,000 (1st year), 2,000,000 (2nd yr.)

7.0 Project Assessment/Evaluation = 25,000

Subtotal Design, Remove, Report = 8,325,000

30% Contingency = 2,497,500

Total Estimated Cost For IRA Implemenation = 10,822,500

91122360106

ATTACHMENT E

IRA SCHEDULE

The attached schedule for the proposed IRA is preliminary. Additional data about site conditions and health and safety requirements are required to produce an accurate schedule. A final schedule will be provided in the IRA Proposal.

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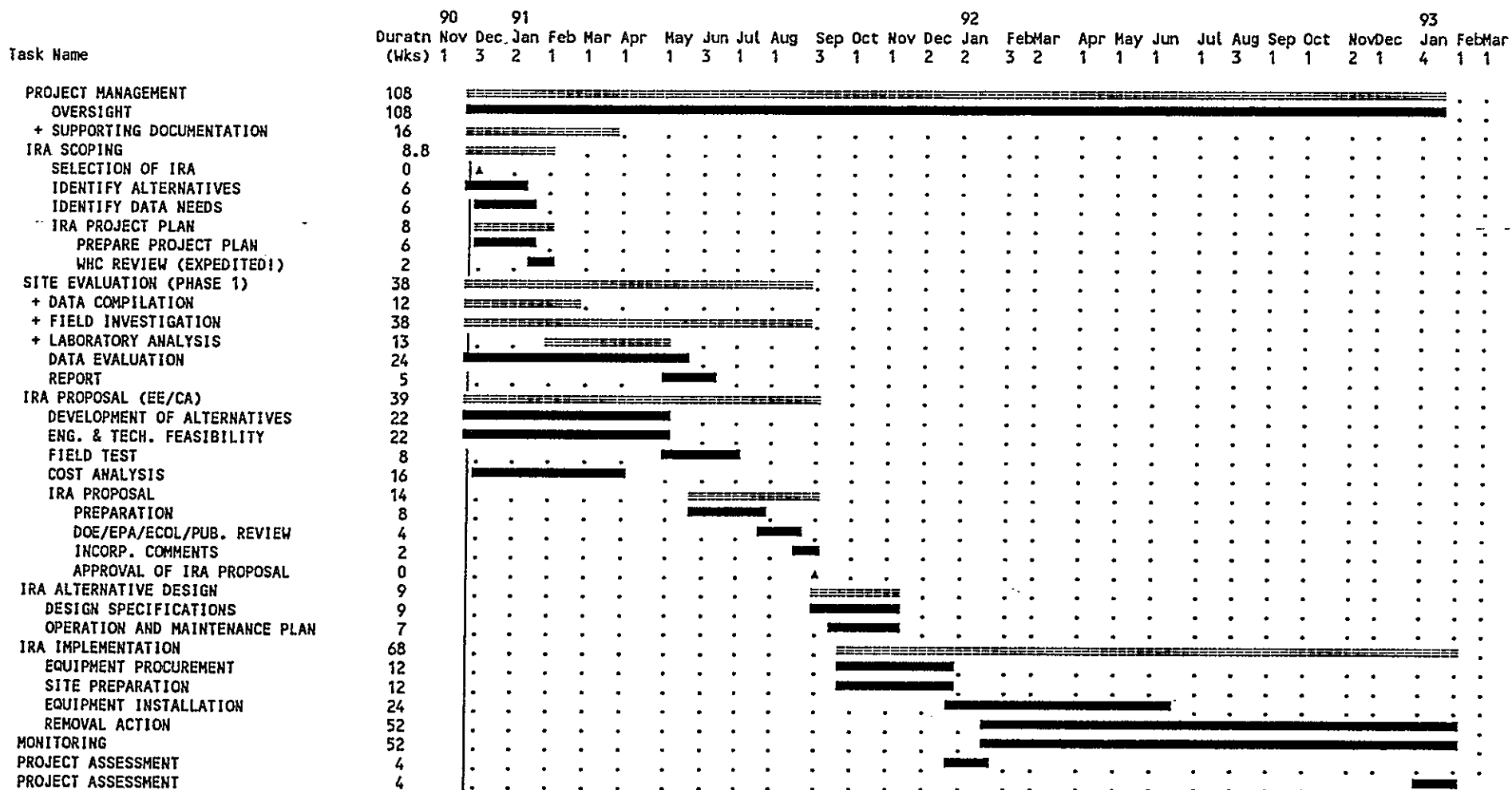
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Schedule Name : INTERIM RESPONSE ACTIONS - CARBONTET PLUME

Responsible :

As-of Date : 27-Nov-90

Schedule File : CARBNTET



9058577D
Attachment 2

LETTER OF TRANSMITTAL TO
EPA AND ECOLOGY

This letter was sent via cc:Mail to
Joretta Heath, Julie Erickson, and Bob Stewart

91120530129